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Published by Consolidated  
Dental Manufacturing Co.  
130, 132, 134 Washington  
Place; 187, 189, 191 West  
4th Street, New York . .



Subscription, \$1.00 per year  
Foreign U. P. U. Countries \$1.75  
Canada \$1.50 per year

Entered as second class matter  
at the New York, N. Y., post office  
under the Act of March 3, 1879

Vol. XXXIV. No. 10  
October  
1912



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M.D.S., D.D.S., C.D.  
Editor  
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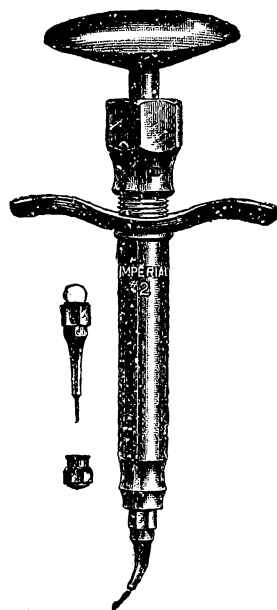


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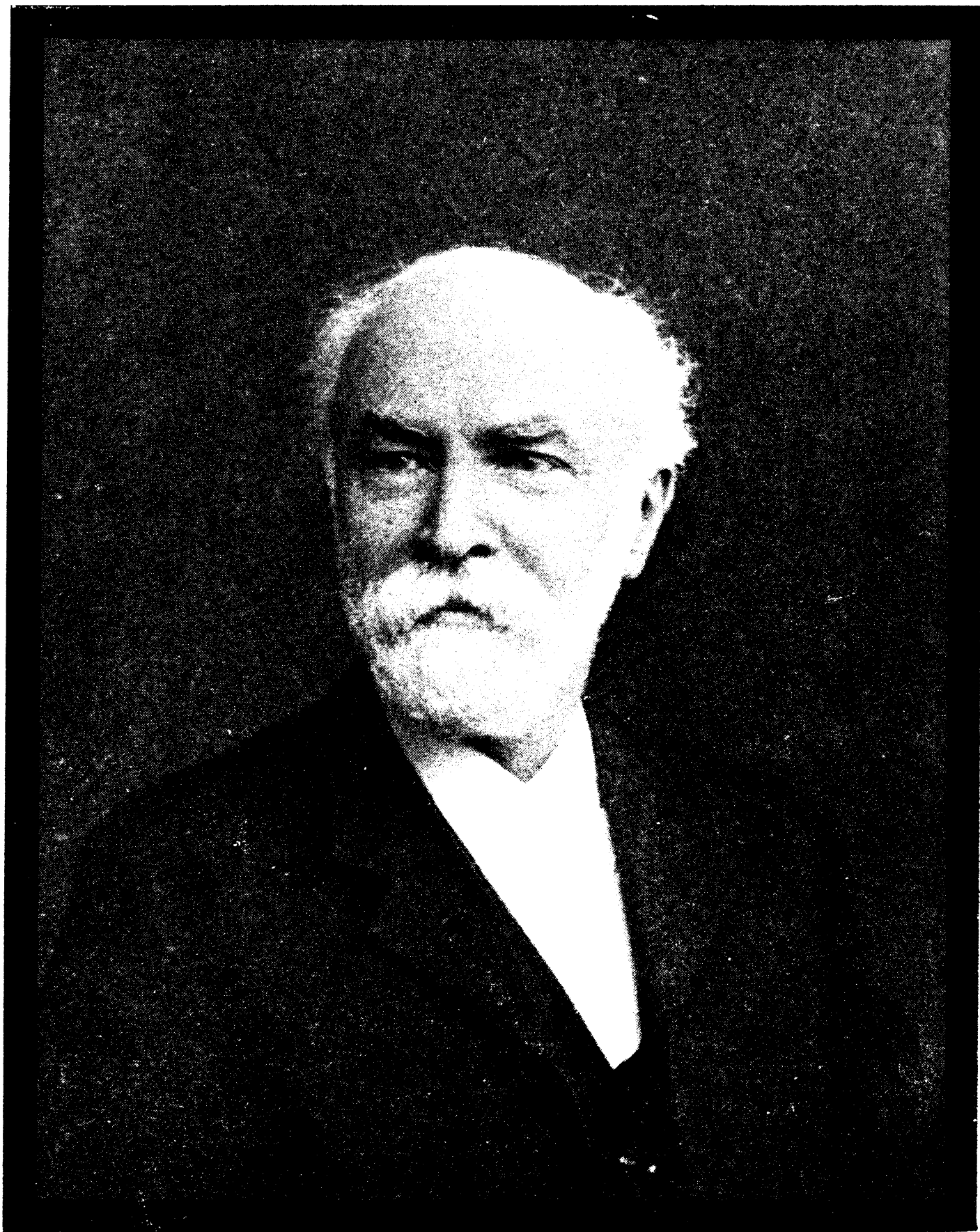
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# EXCLUSIVE CONTRIBUTIONS

## Dental Radiography.\*

By HOWARD R. RAPER, D.D.S.,

*Professor of Operative Technic and Roentgenology at Indiana Dental College,  
Indianapolis.*

### CHAPTER VIII—*Continued.*

#### **The Dangers of the X-Ray.**

A work of this kind would be worse than incomplete, it would be a positive menace to the welfare of the public and the profession, without a chapter devoted to vigorous warning of the evil results that may occur from exposure to the X-rays.

The following unfortunate results have been attributed to the action of the X-rays: dermatitis (*i.e.*, X-ray burn), cancer, leukemia, sterility, abortion, insanity, lassitude and alopecia.

We will now consider each of these foregoing dangers, taking them up in the order named.

X-ray burns are of two kinds, acute dermatitis and chronic dermatitis.

**Acute Dermatitis.** Acute dermatitis† manifests itself anywhere from twenty-four hours to (in rare cases) as long as two or three months after exposure to the rays. The time, however, is usually from three to fifteen days.

Itching and redness are the first symptoms to appear. The itching becomes intense, swelling occurs, the skin grows harsh and dry, and has a smooth, glossy appearance.

\*Copyright, 1912, Howard R. Raper.

†Elberhart "Practical X-Ray Therapy."

## ITEMS OF INTEREST

In mild cases the inflammation subsides gradually after a few days and, depending on the severity of the burn, may or may not be followed by desquamation and loss of hair.

This Elberhart calls an acute dermatitis of the first degree.

In the more severe form of acute dermatitis, termed by Elberhart of the second degree, there will be the formation of a blister with the usual serous exudate and marked neuralgic pains.



Fig. 308. Chronic X-ray Dermatitis.

In the very severe cases of acute dermatitis, where the deeper layers of the skin and underlying tissues are affected, a slough forms and the destructive condition shows a marked tendency to spread and become malignant. Severe pain in these latter cases is a wellnigh constant symptom.

After exposing himself to the X-rays a great number of times, and having had a number of mild attacks of acute dermatitis—or perhaps without ever having had acute dermatitis—the X-ray operator notices certain tissue changes occurring, usually on the back of the hands, sometimes on the face and chest. The hands, face and chest are most likely to become affected, because these parts are the most exposed to the rays. There is a pigmentation of the skin very similar to tanning, such as sun and wind will produce. Freckles occur in some cases. The skin becomes harsh, dry and wrinkled—the same changes that occur with age. Hair drops out. The fingernails become brittle and thin and ridged longitudinally. Small, hard, scabby growths (keratoses) occur here and there. These growths break down into ulcers, which often become cancerous. (Fig. 308.)

**Cancer.**

There has been a great deal of discussion as to whether X-rays can, or cannot, produce cancer, but in the face of such reports as Dr. C. A. Porter's\* I do not see how anyone can dispute it. According to the highest authorities, X-rays can, and have, produced carcinoma. In 1907 Dr. Porter reported eleven cases of "unquestionable X-ray cancers," six of which proved fatal.



Fig. 309. X-ray Cancer.

Cancer usually follows a chronic dermatitis, occurring at the site of a former ulcer, though it may result from a very severe acute dermatitis. When cancer follows chronic dermatitis the victim is almost invariably an X-ray operator; when it follows acute dermatitis the victim is usually a patient who has been exposed to the rays for therapeutic purposes.

Even before the formation of cancer, when chronic ulcers appear, operation after operation becomes necessary. These operations consist of a curettement of the ulcer and skin grafting. With the formation of cancer commences amputation. First one finger, then another, then two more, then a hand, both hands, an arm. A welcome death, due usually to the formation of metastatic cancers throughout the vital organs of the body, is the next step of the progressive case.

I print reports here by Dr. Porter of two more or less typical cases of fatality due to X-ray lesions:

\*"The Surgical Treatment of X-Ray Carcinoma and Other Severe X-Ray Lesions, Based Upon an Analysis of Forty-seven Cases."

## ITEMS OF INTEREST

"Case XXXI—Man, 32 years old, who, after three years of X-ray work, suffered from severe lesions on both arms, breast, neck and face. In 1901 there began a slowly growing ulceration of the back of the right hand, which, by the middle of 1902, had become a gangrenous epithelioma; glands enlarged at the elbow and in the axilla. Amputation at the shoulder; axillary glands removed, and found full of squamous-celled carcinoma. Sound healing. In December, 1904, a typical cancer of the lower lip and another of the angle of the mouth were excised, as was a suspicious



Fig. 310. Hands of X-ray operator after thirty operations.

lesion on the back of the left hand. In March, 1905, a growth of the cheek was removed, which was pronounced by Unna to be a sarcoma. In September, 1905, excision of the right lower jaw for carcinoma. Recurrence, involving the tongue and the adjacent cheek, was present in February, 1906. Death soon followed."

"Case XLVII. Summary: In 1897 began work with the X-rays, testing the tubes for several hours a day. First noticed erythema and warty growths in 1900. In 1905, keratoses and warts had formed on both hands, chest and face. First carcinoma developed and required amputation of two fingers of the left hand in April, 1907; similar growth curetted on right hand. By March, 1908, rapid extension of the disease necessitating amputation of left forearm; curettage of epithelioma on right hand. August, 1908, involvement of epitrochlear and axillary glands. August 11, 1908, amputation of fingers of right hand. September 25, 1908, amputation at shoulder. Death on November 7, 1908; general carcinosis." (Fig. 309.)

The report of another case by Porter commences:



"I have operated upon this patient under ether thirty-two times, the operations varying in duration from one hour and a half to three hours. At present there remains of his left hand two joints of the little finger, the forefinger and thumb; of the right hand, the thumb, the middle finger, barring part of the terminal phalanx, and one and a half phalanges of the little finger. More than half of the skin of the backs of both hands consists of Thiersch grafts." (Fig. 310.)

Regarding the pain suffered by these patients, with severe chronic dermatitis and cancer, Porter says: "The amount of pain suffered is variable though usually extreme. From my experience and personal communications with patients, I believe that the agony of inflamed X-ray lesions is almost unequaled by any other disease."

**Leukemia.** Leukemia is a blood disease characterized by an increase in the number of white blood cells. The cardinal symptoms of the disease are insidious emaciation and lassitude. It is generally fatal. Practically nothing is known concerning its etiology. It is suspected that continued exposure to the X-rays may produce leukemia but, as yet, this supposition has not been scientifically substantiated.

**Sterility.** X-ray operators of the male sex, who subject themselves to repeated mild exposures to the rays, are often sterile. This sterility is due either to the death of the spermatozoa, or to their complete disappearance from the semen. This condition has no effect one way or the other on the carnal instincts of the individual, and if the victim will discontinue exposing the parts to the X-rays, virility will be regained. Likewise repeated exposures of the ovaries to the X-rays will produce sterility in the female by causing a disappearance of the Graafian follicles; the menses do not cease, and sexual animation remains unaltered. As with the male, the power of reproduction is regained promptly when the parts are no longer subjected to X-radiation.

**Abortion.** Quoting from Elberhart (Practical X-Ray Therapy): "Fraenkel claims that the Roentgen ray retards the growth of the ovum and tends to produce abortion when the thyroid gland and ovaries are exposed to it."

Fraenkel has in mind the use of the X-rays as a therapeutic agent, and mentions a case of induced abortion after twenty-five exposures of five or ten minutes each every other day.

For the slight radiation required for dental radiographic work pregnancy *cannot possibly* be considered a contra-indication.

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**Insanity.** There is a somewhat popular superstition that X-rays will produce insanity in those who constantly expose themselves to their action. This belief arose, I think, from the fact that a prominent X-ray operator lost his mind a few years ago. So far as I know he is the only X-ray operator, of the thousands engaged in the work, who has met with such a misfortune, and it is as ridiculous to blame the X-rays for it as it would be to claim that his insanity was caused by the suspenders he wore.

There is a belief among operators themselves that X-ray operators develop a "nervous, restless, intense personality." Whether the development of such a personality is due to the electric condition of the atmosphere of the operating room, to the action of the X-rays, or to the enthusiastic interest developed by research work is a matter of conjecture. Personally I do not believe any of these things are responsible for the restless, nervous personality of so many operators. These men were of a restless disposition before they took up X-ray work. In fact, their adoption of the work was but a sign of their restlessness and desire to be progressive.

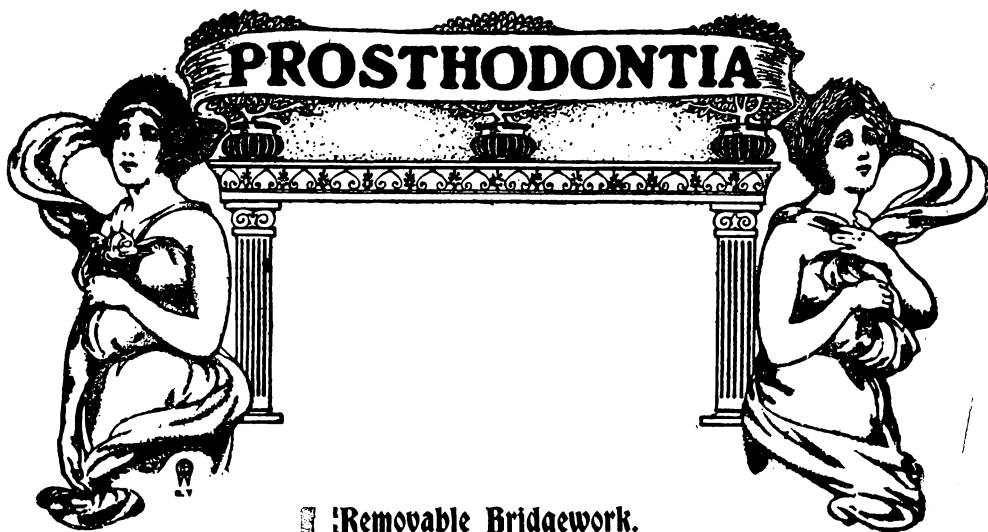
**Lassitude.** X-ray operators often complain of a feeling of utter exhaustion. When it is proven that X-rays can produce leukemia, I shall believe that this feeling of extreme lassitude is caused by exposure to the X-rays. Until then I shall hold to the belief that this exhaustion, which unquestionably does occur, is due to the work, physical and mental, the bad air of the dark room, and the depressing disappointments experienced by all conscientious radiographers.

**Alopecia.** Loss of hair may occur from a severe X-ray burn, but I can find no reliable authority who attempts to prove that the X-rays will produce baldness of the head without dermatitis.

*(To be Continued.)*

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Figs. 308, 309, 310, copied by permission from *The Journal of Medical Research*.



## Removable Bridgework.

By Hart J. Goslee, B.S., D.D.S., Chicago.

The entire success to be obtained from the application of bridgework of any kind depends largely upon a judicious selection of that particular type which best meets the requirements of the individual case, and the question of whether a "fixed" or "removable" type should be used, or as to which will offer the greatest assurance of success, from both mechanical and sanitary viewpoints combined, has always been a problem.

Broadly speaking, in all cases where the *number*, *relative position*, and *stability* of the remaining natural teeth are favorable to the requirements of a mechanically secure and more or less sanitary structure, "fixed" bridgework will probably always afford the very best means of supplying missing teeth. In that great number of cases in which these essentials to the successful application of "fixed" structures do not obtain, however, or where the number of missing teeth to be supplied compared with the relatively *inadequate* number which may be used for support and retention, from a purely mechanical viewpoint, combined with the varying degrees of absorption demanding gum restoration, and the accompanying sanitary considerations, *removable* structures will likewise always be indicated.

Thus each type of structure has its more or less definite sphere of usefulness, and the successful application of each will depend as much upon the judgment exercised by the operator in selecting the best mode of procedure for the individual case, as upon the skill displayed in the construction of the fixture.

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When all of the combined requirements of a fixed structure as thus outlined do not present, then a removable one is not only indicated, but is *demandēd*, and when this has been determined, and some type of removable structure is contemplated, at least two important features present, primarily: *First*, the particular natural teeth, which will best answer the purpose of supporting the fixture, and, *second*, the best means of attachment for its retention.

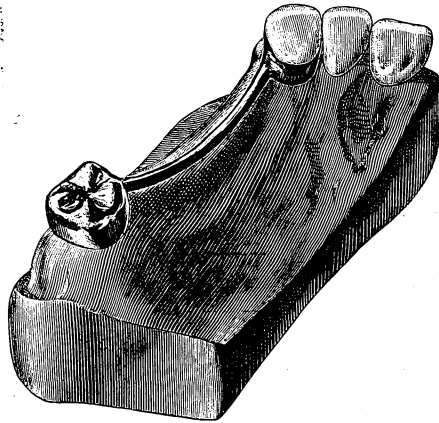


FIG. 1.

### Supporting Teeth.

In determining which of the remaining natural teeth will afford the best support for a removable fixture, it should be observed that those to be thus utilized should be strong and healthy, and as nearly directly opposite each other in the arch as is possible.

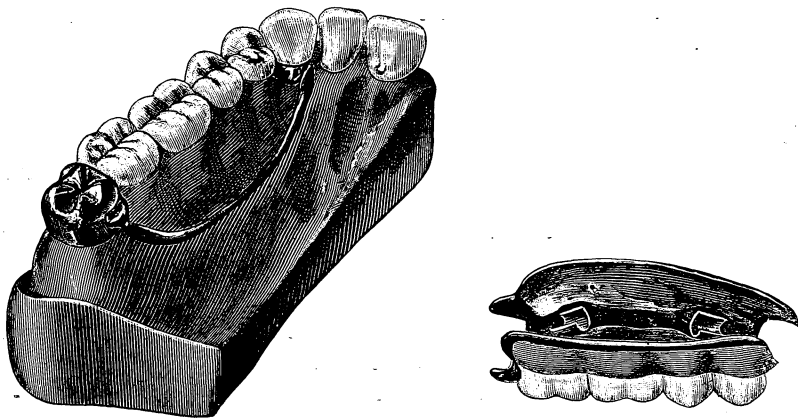
If pathologic conditions are present, the necessary treatment to put these teeth in favorable condition and insure their longevity, should be previously followed, for the reason that the entire success of the fixture is essentially dependent upon their stability and permanency.

Additional stability may often be secured by uniting two teeth on one side of the arch, or on both sides, either by making crowns or inlays, and soldering them together *where they are adjacent to each other*, or, if they be removed from each other, as in the case of a cuspid and third molar, for example, with a round iridio-platinum or clasp-metal wire, about twelve gauge, placed in direct contact with the summit of the ridge and attached to a crown or inlay at each end. (Fig. 1.)

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This latter procedure, which is commonly known as "assembled abutments," gives to each supporting tooth the combined stability of both, and may be otherwise advantageously utilized, and, since the supporting teeth in all instances are to be continuously subjected to considerable stress, every precaution which will insure or add to their permanent stability should be observed.

It is also important, from a mechanical viewpoint, that attachments should be placed as nearly opposite each other in the arch as possible, in



**FIG. 2.**

order to insure a maximum degree of stability in the retention of the fixture, and if this is observed *two* attachments will be all that will be required in the average case.

To use more than two attachments in a single case only involves complications, makes absolute parallelism more difficult, and diminishes the facility with which the patient may be enabled to remove and replace the fixture.

### **Attachments.**

The selection of the type of attachment best suited to the requirements of the individual case is perhaps largely a matter of personal preference, but a very few general types will be found to adequately meet the demands of the average case.

### **Clasps.**

Wide clasps encompassing three angles of the tooth, provided with an occlusal rest, *not* cast, but made of heavy rolled clasp-metal alloy (26 gauge),

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probably afford the very best means of obtaining anchorage to the natural or artificial crowns of bicuspid and molars.

That clasps should not be cast is especially emphasized, because the molecular rearrangement resulting from casting most of our present alloys destroys, to a greater or less extent, the very qualities of strength and resilience demanded of them, and which undoubtedly obtain best in a rolled or drawn metal or alloy.

In all forms of removable bridgework or partial dentures, where clasps are used, however, some form of occlusal rest is necessary as a means of providing against subsequent settlement of the case. If this precaution is not observed, complete loss of occlusion and usefulness will soon follow.

In this connection it must be remembered that subsequent settlement to a greater or less degree will always take place in all forms of cases which rest upon, and are supported by, the gum tissue. The extent of absorption and consequent settlement, however, is stimulated, and therefore increased, when no provision whatever to overcome it is made, whilst any provision in this direction will necessarily minimize, if not overcome, such settlement.

### **Telescoping Tube and Split-Post.**

The telescoping tube and split-post attachment is useful when applied to the *roots of the six anterior teeth*, or where the tube may be buried within the tooth, and without a too liberal sacrifice of tooth structure.

### **Manufactured Attachments.**

The Roach, Morgan and other types of manufactured attachments will also be found valuable when used in connection with, and projecting from, either porcelain or gold crowns, or gold inlays, on the cus-

pids and bicuspid.

### **A New Attachment.**

In addition to these, I am pleased to submit a method of attachment which, while perhaps but a modification of some of the previously mentioned types, is entirely new and, more or less, universally

applicable.

This attachment consists in utilizing the grasping principle of an open tube with straight and parallel sides, which is the removable part of the fixture, in combination with a round wire, of about 12 gauge, attached to and therefore a part of the "fixed" portion of the structure, but lying in a *horizontal* position instead of in a vertical one, in its relation to the supporting fixture.

Such an attachment may be made by utilizing the tube of a "Roach"

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attachment in combination with 12-gauge clasp-metal wire, and while simple and easily constructed is especially useful in extensive cases, where the abutment pieces are assembled, though equally applicable to less extensive, or to the most simple cases. (Fig. 2.)

It is easily applied, easily tightened when loosened by wear, takes up but little space, does not require absolute parallelism when more than one is used on the same fixture, is applicable alike to either gold or vulcanite work, and is secure.

The conception of this attachment on my part was forced upon me in a very interesting manner. About a year and a half ago I inserted a large



FIG. 3.

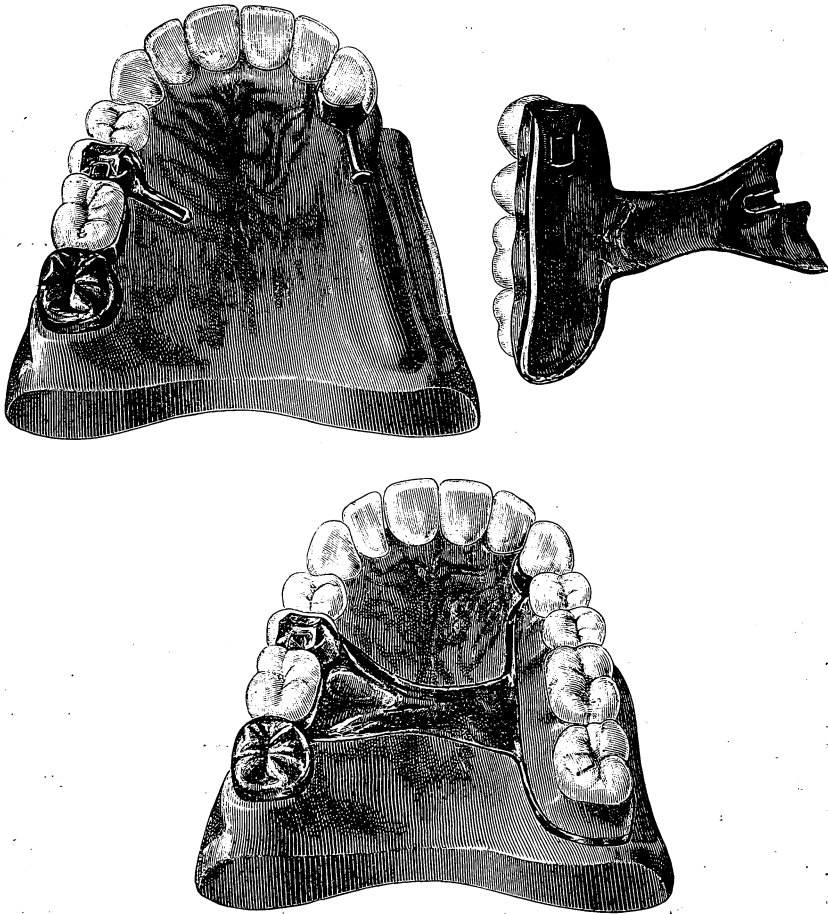


FIG. 4.

fixture in the upper jaw, involving the six anterior teeth and the two third molars, the latter being joined to the former with an iridio-platinum wire, 12 gauge, resting upon the summit of the ridge on each side. In about the center of the wire on both sides a vertical split-post was attached. This constituted the fixed structure, which was cemented to place, the split posts supporting a removable saddle, which supplied the bicuspid and molars.

A few weeks after the completion of the case the patient returned with one of these split-posts broken away from the fixture, leaving nothing to hold that side in place. At first this seemed a calamity, which meant only the destruction and removal of the fixture, and the making over of the entire case. As this was not a particularly pleasant procedure to anticipate, and as necessity has always exercised a maternal influence upon the possible inventive ingenuity of man, it occurred to me that I might obtain attachment to that wire by grasping it with an open cylinder, or tube, lying parallel with it, and thus avoid removing and rebuilding the whole appliance. This I did, with the result that this side worked so well, and seemed so much stronger than the one where the vertical split-post remained, that I subsequently ground it off and used the open tube on that side also, and the utilization of this form of attachment in many cases since then has given me more satisfaction than I have ever obtained from any other method.

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**FIG. 5.**

**Technique.** In the application of this attachment in all cases where the supporting wire extended *distally* from the fixed portion of the structure, and where it lies on the summit of, and parallel with, the ridge, it is essentially necessary that it should be supplied with a "head," which will prevent any slipping or sliding of the removable structure. (Fig. 3.)

If such a provision is not made some movement and loss of stability will result from the stress of mastication. But when this wire is placed



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at an angle, or projects toward the center of the palate, such provision is not necessary. (Fig. 5 shows both styles.)

When used in connection with gold saddles, the fixed portion of the structure, including the wire extensions, should be completed and cemented to position on the supporting teeth. When firmly and securely attached, the open tubes should then be placed in position in their proper relation to the wire extensions, and a bite, in wax, and impression in plaster then taken

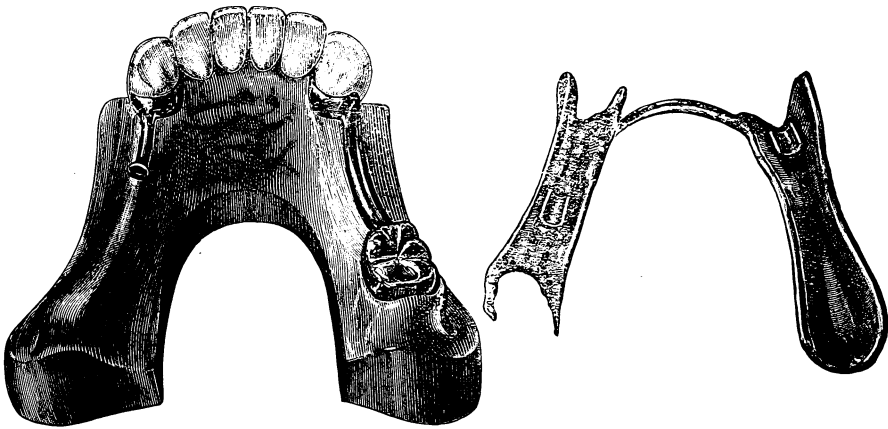


FIG. 6.

When the impression has been removed the tubes should be detached from the wire and placed in position in the impression, and held securely therein with a bit of melted wax if necessary.

A "dummy" wire of German silver, which should be a counterpart of the original, though somewhat longer, should now be fitted into the tubes as they lay in the impression, and the latter then varnished and filled with a good soldering investment material. The presence of the "dummy" German silver wires causes the tubes to be held securely in position on the model when separated from the impression.

Where the saddles are to be made by the casting process, as soon as the model has been obtained, each of the open tubes should be carefully detached and a small piece of round, iridio-platinum or clasp-metal wire of about 17 gauge, just long enough to project slightly beyond the tube at each end, soldered to the center of the tube. (Fig. 4.)

Place the tubes back in position on the model, then varnish over the entire surface well in order to facilitate the removal of the wax pattern,

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and then mold very thin wax to the desired outline of the saddle, and cut out the wax to *expose* the wires on the tubes. This will leave a hole in the wax saddle through which each wire will be exposed.

Now stiffen and otherwise perfect the wax pattern; then adjust the sprue formers—remove, invest and cast, using coin gold. The wax saddle, or pattern, may be stiffened with a bead of very hard wax, or any change of form may be overcome by covering it with a thin coating of

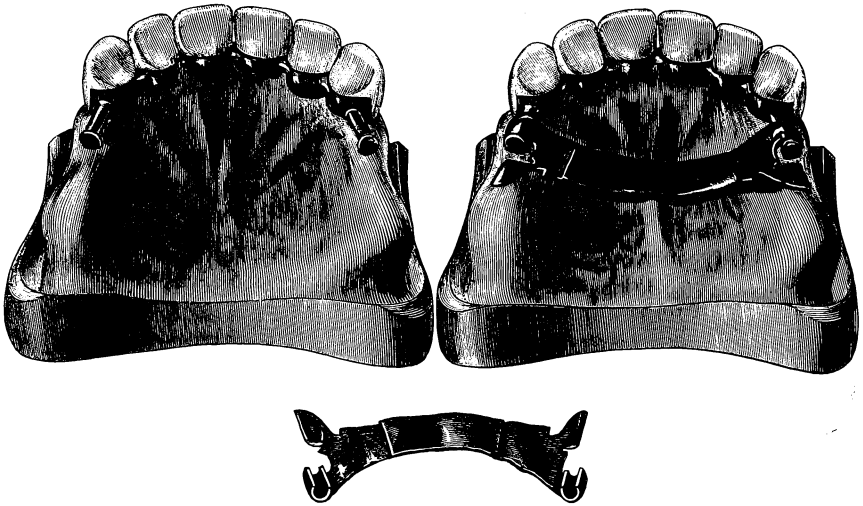


FIG. 7.

casting investment material before removing it from the model, and after the sprue formers have been attached. When the casting has been made, the opening through it should be trimmed until, when fitted to position over the model, the wire on the open tube will project through.

The relation between the saddle and tube, with its wire lug projecting through, should now be securely sustained with hard wax, removed from the model, invested, and soldered, after which the piece may be again placed on the original model, and if to be joined with each other by means of a palatal strip, if in the upper jaw (as illustrated in a typical case in Fig. 5), or a lingual wire, if the lower jaw (Fig. 6), these should now be fitted, and the attachment of all parts then made by soldering directly on the model.

After the substructure has been thus completed, it should be placed in position in the mouth, and a bite in wax and impression in plaster then

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taken, after which the teeth may be arranged and the removable part completed in the usual manner.

In the construction of cast bases, if a good model of a high-grade investment material is obtained, and if the wax base is carefully formed, made sufficiently thin and properly stiffened, the process offers every assurance of accuracy of adaptation and of strength, and the possibilities are unlimited. For all forms and sizes of saddles, or bases, coin gold seems to be especially adapted to cast work, and to afford all of the integral strength ordinarily demanded.



FIG. 8.

While this attachment is equally useful when  
**Vulcanite Work.** confined to simple vulcanite cases, still to have the best results the open tube should be attached to a palatal bar, or lingual wire, with solder, wherever possible, as illustrated in a typical upper case in Fig. 7.

When used in this manner the proper position is securely sustained, and the saddles and attachment of the teeth may then be made with vulcanite.

In this procedure the technique is the same as previously described.

Where the case is to be made *entirely of vulcanite*, however, the open tubes should be placed in position in the mouth and the bite and impression taken.

When the model has been obtained and mounted upon the articulator, the open tubes should be removed, and a piece of 16-gauge iridio-platinum or clasp-metal wire, slightly flattened, and with each projecting end bent away from the open tube and notched, should be securely soldered to the center of the tubes. (Fig. 8.)

Each of the open tubes should then be mounted to position on the model with *cement*, allowing a slight surplus to remain.

When this has been hardened, the relation will be securely sustained, after which the case should be completed in the usual manner as for any vulcanite work.

A similar attachment, known as Gilmore's, is now being manufactured, and may be easily obtained by those who do not care to make their own.



## Importance of the Occlusal Plane.

By W. C. DALBEY, A.M., D.D.S., DuQuoin, Ill.

I am sure that many dentists do not appreciate the importance of the true occlusal plane in making artificial dentures. The fact that nature constructs her masticatory surfaces, not only in the human but in other animals, along certain prescribed lines or planes, is enough to prove its absolute importance. We cannot improve on nature. But the nearer we conform to nature the nearer our work is to perfection. Many of us in the past have exerted ourselves to the utmost in making the plates "stick," rather than exercising any endeavor in conforming to nature's laws. Some of us have devoted our best skill for months in correcting a case of malocclusion, but have given little thought in correcting the malocclusion in one of our beautiful (?) artificial dentures.

The writer in his early experiences in constructing artificial dentures along anatomical lines, soon learned the importance of a definite occlusal plane. Writers upon the subject of anatomical articulation as set forth in the construction of artificial dentures, tell us that the line of the occlusal plane is parallel with and below "a line drawn from the lowest point of the external meatus to the lowest point of the ala of the nose." The writer wishes to show later on in this article that this is only partially correct. If the true occlusal plane is important, and if this line (occlusal plane) is found to conform to or parallel a line from the lowest point of the external meatus to the lowest point of the ala of the nose, then this latter line is just as important. It is really a basic line or a predetermined line. Then, because of its importance, why not give it a name? I have not seen in all the literature upon this subject of anatomical articulation a name given to the basic line that plays so very important a part in the correct articulation of artificial dentures. As this is a natural predetermined line, the writer suggests that this line be called the *Predeterminate Dental Line*, or we might call it the parallel line of the dental plane. Either would be shorter than to say "the occlusal plane is a line coinciding in a general direction with the natural teeth beginning a sixteenth of an inch below the upper lip at rest and reaching upward and backward parallel with a line from the floor of the external meatus to the lowest point of the ala of the nose."

To determine this basic line, or predeterminate dental line, the writer in his early experience found difficult. Not only was it difficult to draw a line upon the face of most people, women especially objecting, but the line was more or less distorted when the mouth was opened, and how could a fellow get a line on a face covered all over with whiskers? Moreover, after the line was made the curve which this line necessarily

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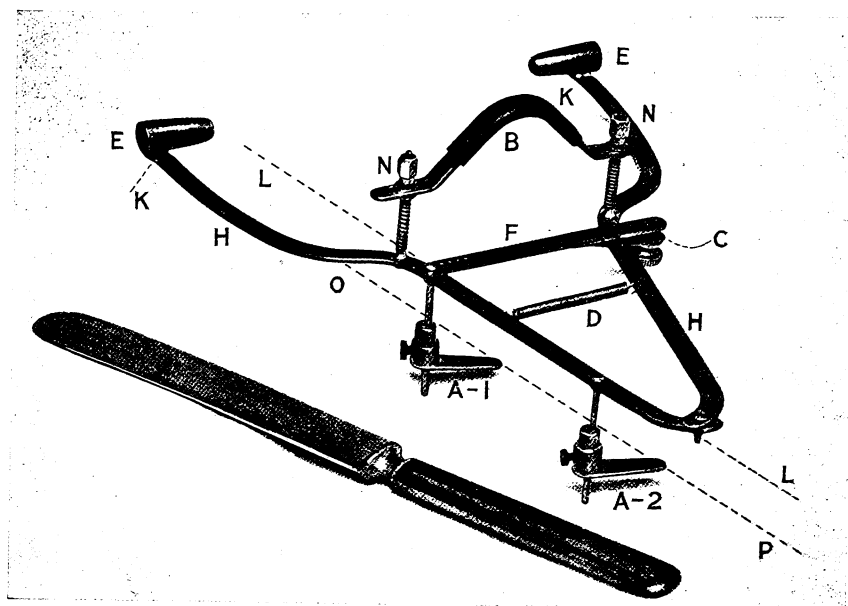


Fig. 1.



Fig. 2.

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takes around the cheek, and also the position of the operator, make it almost impossible to obtain perfect results. These objectionable features have been eliminated by using the invention herewith illustrated.

### **The Occlusal Plane Gauge.**

This *Occlusal Plane Gauge* was invented by me some time ago, because I felt the necessity of a more accurate determination of the occlusal plane. The bars H H, while conforming to the general lines of the face, are straight horizontally, as designated by line L L, which is the predeterminate dental line. This line is parallel with the general line of the teeth, extending backward and outward and slightly upward. It is directly above, and of course, parallel, as I have said, with the occlusal plane. The point of the little gauge A-1 is set one-sixteenth of an inch below the lip at rest and gauge A-2 set parallel to it. Both gauges A-1 and A-2 are set equidistance from the predeterminate dental line, L L. When the table knife presses the wax upon the prepared trial plate, when in the mouth, and against the little gauges A-1 and A-2, the occlusal plane is established absolutely, and no guess work. The line O P shows the exact occlusal plane.

The occlusal plane gauge is adjustable in every way. The spring D holds the tubes E E into the external opening of the ears. The cones E E are hollow throughout so that they do not hinder the patient's hearing when inserted. A piece of soft rubber tubing covers the nose bar B and nuts N N adjust the ridge of the nose, at the same time bringing the bar F under the nose, both holding the bars H H in their proper position. The whole gauge is then held fast in position by clamping nut C. Fig. 2, on account of rather a downward view, does not show the line L L to be beneath the root of the nose, but the instrument is in correct position when viewed sidewise and ready for use.

I said I wished to show what the line from the lowest point of the external meatus to the lowest point of the ala of the nose is not quite correct. In placing this instrument upon subjects with full natural dentures and measuring along a parallel line designated by the little gauges A-1 and A-2, and parallel to the meatus-ala line, I found the end of the occlusal plane line at the third molar, too high as set forth in the literature upon this subject. The natural third molar comes a little below the parallel point or the meatus-ala line, so I put a curve of one-eighth of an inch downward at the ends of the tubes E E and bars H H, as shown at K K. This would bring the meatus end of the line lower than heretofore supposed. Were there to be no carving of the occlusal plane at the heel end of the trial plate to conform to the compensating curve upward, the occlusal plane line would be correct as set forth heretofore. In other words, could the compensating curve end exactly where made in conforming to the parallel aspect of the predeterminate dental line, the heel end of the occlusal line would be correct, but as I have said, the carving brings the line too high. Could the carving extend from nothing at the heel end and the trial plate be added to downward and forward along the first molar and second bicuspid lines, the curve would be made to conform more nearly to the occlusal plane that nature once provided the patient. Let us conform to nature's laws if we desire to avoid serious mistakes.



## **Some Appliances I Have Found Useful in Orthodontia.**

By **ADELBERT FERNALD, D.M.D.**, Boston, Mass.

The appliances illustrated in the following pages have been used by me for several years with good results. Thinking that they may be of some use to the profession, I present a brief description. They are not expected to do everything in orthodontia, but I have found them very efficient for expanding the arch in those cases where I have applied them.

I exhibited these appliances before the Harvard Odontological Society last May, and was very much pleased with the interest shown.

For expanding the arch, I have the hinged arms attached with screws or riveted pins. I also have arms so that I can attach or detach them while the appliance is in the mouth. In Fig. 1 the right hinged arm when ligated to position is held in place by a U-shaped lug. For the arm and hinge I use pin stems of different sizes, gold plated, 10-K. or 14-K. gold. They can be obtained at any wholesale jewelers. (See Fig. 2.)

In constructing these appliances, I buy part or whole of the different made appliances in the market, such as Angle's, Pullen's, Julius Aderer's, Knapp's and Lukens', etc. For molar bands I prefer to swedge bands to fit each tooth, bending the hinged arms in and out to bring pressure on the teeth I wish to move, adjusting, in all cases, sufficient lugs to hold arms in place.

With the appliance shown in Fig. 1 the upper left cuspid or first bicuspid should be banded with a U-shaped lug to hold the point of arm in place as on the opposite side. By ligating the hinged arms to outer

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alignment wire I can easily expand the arch and, at the same time, the centrals can be ligated to place in the usual way. After the arch has been expanded, or if, for any reason, I wish to wait a few weeks or months before doing anything further to the case, the outside alignment wire can

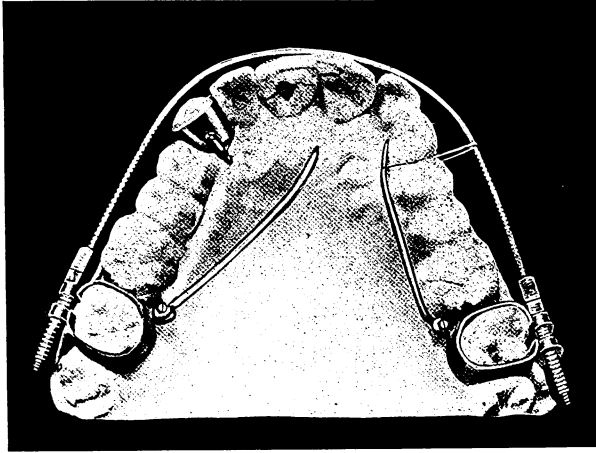


Fig. 1.

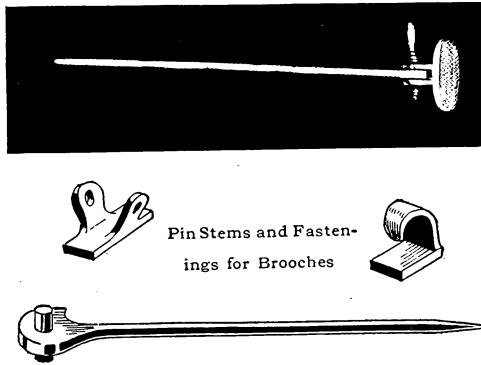


Fig. 2.

be removed and the two anterior points of swinging arms bent at right angles to each other, and a retainer, consisting of a spring wire and two short pieces of tubing, soldered to each end, of the right length to be sprung tightly into place over the two bent arms, holding them apart. (Fig. 3.)

With the appliance seen in Fig. 4 for expanding the arch, I use a double-jack screw (Pullen's), or divided arch slipped into hinged tube on molar bands, using 18 or 20-gauged wire. The anterior part is held in



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place by banding laterals or cuspids with U-shaped lugs, with the posterior end of each side slipped into a little hinged tube attached to molar band on the right.

In Fig. 4, the larger tube which telescopes over the hinged tube on right side has been left off to show the construction. By replacing tube and tightening the two side nuts, I can force the centrals or laterals forward. The two molar bands have two lugs each, so placed that they cannot rotate when force is applied on the central or lateral. By tightening the anterior nut inside the centrals, both sides are expanded. When case is completed no other retainer is needed.

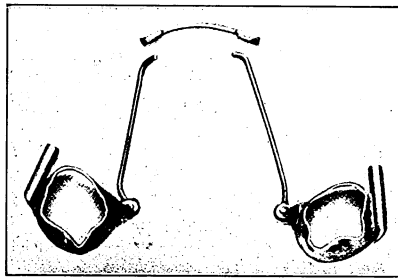


Fig. 3.

With the appliance shown in Fig. 5, I can push or pull the six anterior teeth backward or forward as the jack-screws or divided arch extend through the tubes, at the same time expanding both sides by tightening the middle nut inside of centrals as each tube is soldered on top of a hinge, which is attached to molar bands.

These appliances, Figs. 4 and 5, should have buccal tubes soldered to the molar bands, so that other attachments could be adjusted if needed. If the alignment, or expanding wire, is inserted in buccal tubes on molar bands it will prevent them from rotating, but in all cases where the force is enough to rotate the molar teeth one or more teeth should be banded together. If anterior teeth are to be retracted they, of course, would be ligated to the inner arch or forced back by the outer wire in buccal tubes. The inner part of the appliance, Fig. 5, can remain temporarily as the retainer.

The jack-screws, or divided arch, can be detached without removing the molar bands, and a simple retainer could be made out of a U-shaped wire, with a hole in each end, to be attached to same hinge on molar, and the anterior part of retainer fitted in between the U-shaped lugs on bicuspids.

For expanding both arches, I find these appliances, when adjusted properly, very efficient. I know that every time I tighten the nuts I apply

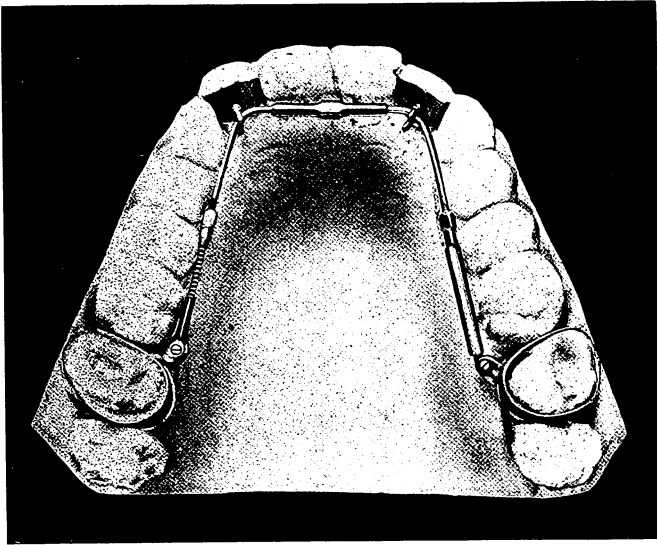


Fig. 4.

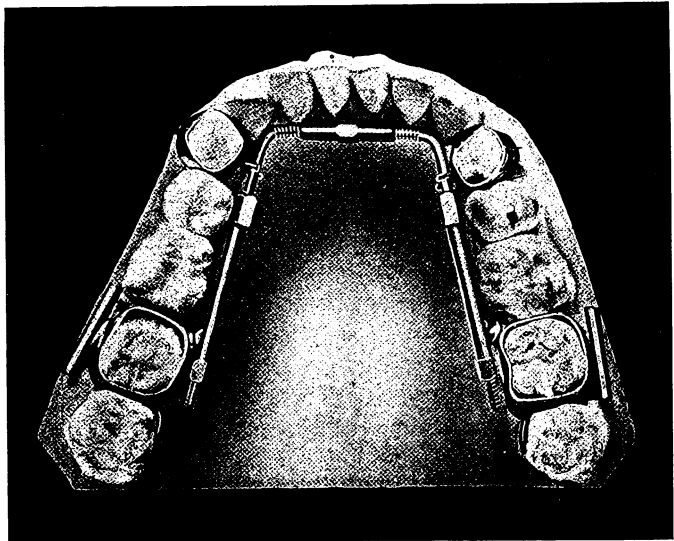


Fig. 5.

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the force in the direction needed. Should the teeth become a little sore the appliance is not tightened until all soreness disappears. If the appliance is not tightened very much at first the teeth do not seem to get very sore, and I find I am able to move the teeth more quickly and more easily into position, both for the patient and myself, as there are no ligatures to slip up into the gum or to slip off from the teeth.

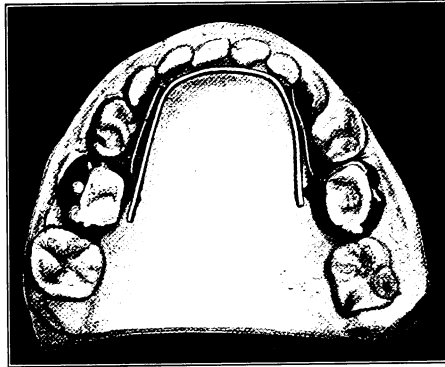


Fig. 6.

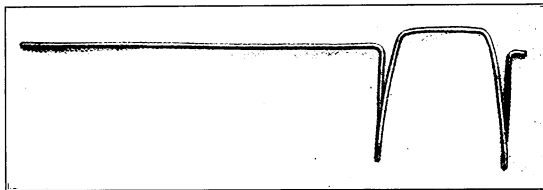


Fig. 7.

Where I find it necessary to expand the arch for children, with nearly all of the deciduous teeth present, I obtain pleasing results by using appliances illustrated in Fig. 6, consisting of bands fitted to right and left second molar, with about 24-G. clasp-metal arms soldered to molar bands and extending to the anterior part of the cuspids, each arm having one hole drilled between cuspid and first molar, and each molar band having one lug or pin soldered to lingual part. The two bands with arms are cemented into place, and a spring of clasp wire bent (as shown in Fig. 7) is sprung into place. The two free ends of spring are sprung into place in holes drilled in arms between cuspid and molar on either side. The rear loop of the U-shaped part of spring is sprung in over lugs or pins soldered to each molar band. Have spring about 18 or 20-gauge. The younger the patient the weaker the spring. The spring can be adjusted to broaden the front or molar region of mouth. It can be easily detached

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and pulled wider, so as to increase the pressure. I usually ligate it on both sides, so that in case it should be dislodged the child cannot swallow it.

Fig. 8 illustrates an appliance which I have found very practical in measuring the mouth and models to show just how much I have moved the teeth. It consists of a little steel rule with two brass thumb screws,

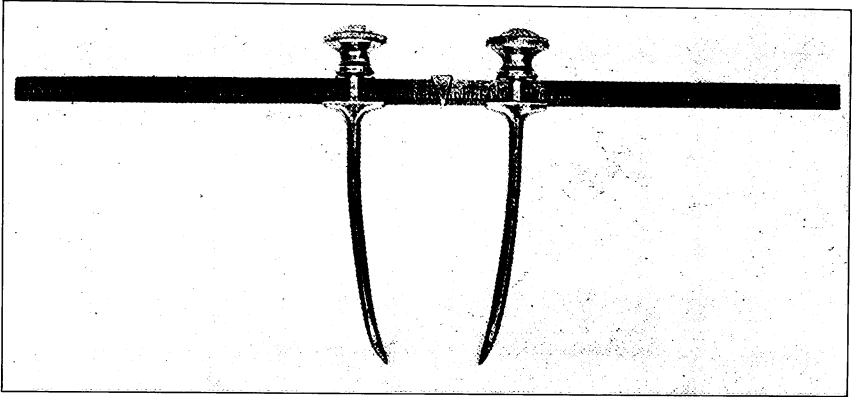


Fig. 8.

with a notch sawed out in each, the size of the rule, with two pieces of pointed wire soldered on to each screw. In between the screws is a little triangular slide held in place by friction. To use instrument loosen one screw and slide arm on the rule adjusting the two points on that part of the model you wish to measure. Tighten screw and shove the triangular slide up till it touches screw. By loosening same screw and adjusting points on the same location in the mouth the distance from apex of sliding triangle on rule to screw will show in fractions of an inch how much you have expanded the arch.





## President's Address.

By MILTON T. WATSON, D.D.S.

*Read before the American Society of Orthodontia, Chicago, July, 1912.*

*To the Members of the American Society of Orthodontists:*

It is with a feeling of mingled joy and regret that I come before you this morning. The joy is partially from gratitude at the confidence you have shown in me by the manner of electing me to the presidency for a second time, and in no small way to the fact that our Board of Censors has done such excellent and faithful work in preparation for this meeting. My regret is that I have personally been able to do so little toward bringing about this fine program, which I think has never been surpassed.

It is not my purpose to detain you in any lengthy discussion, but there are a few things that I believe this society has done exceedingly well, and there are some which I believe can be improved upon; all of which can be mentioned briefly with profit.

I remember very keenly the high ideals, the unanimity of purpose, and incidently, the anxiety that was felt when plans were perfected for the organization of this society. All of you who are familiar with the early activities of this pioneer organization will, I am sure, agree with me when I say that the most conspicuous feature of our activities at that time was an earnest desire to gain a greater knowledge. We exchanged experiences, sought advice and counseled with each other, in true brotherly fashion; always with a due and proper regard for one, at least, of the distinguishing marks of the true professional man, namely, a really earnest desire to help others in our chosen field of labor. Those were happy days—simple, happy days. There was, so far as I know, no jealousy among us, but abundant good will, and a very evident desire that the men best qualified to perform a certain task or duty should be the ones selected. Do you wonder, gentlemen, that with such co-operation, this society made a name for itself, rapidly and without any resort to publicity methods, other than the publication of its transactions?

### **Publication.**

Without wish or intent to detract from the honor due to individuals, I believe I am not in any way overstating the facts when I say that the method of publishing its transactions, employed by this society, has done more to show the profession at large the need for, and the far-reaching influences of, orthodontic interference, than all other influences combined, with the possible exception of the important educational work that is being quite

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generally done now in dental colleges, and this, of course, has been operative for only a comparatively short time, and effects only the graduates of recent years.

### **Dissensions Unnecessary.**

I almost hesitate to mention another and later truth in connection with this society, and yet if we are really men, we should be willing to either defend our past actions, as individuals, or see the error of our ways and improve. You all know that during recent years more or less antagonism has been in evidence among orthodontists; resignations from this society were filed in a few cases, and a new "house of worship" erected. Such methods are not conducive to the most desirable results, and they have served the unfortunate purpose of dividing the working force in orthodontia, which was barely old enough to stand alone anyway, thus hampering the development of the art, as well as bringing about strained relations between men who, so far as I know, really have no actual serious grievance, and who would, I believe, positively be embarrassed to go before a disinterested judge and state their case. Such actions and such an attitude are unbecoming to men who in so many ways entertain high standards of conduct.

I shall pursue this subject only long enough to ask who are responsible? Why do not these men forget their petty personal interests and meet as men, in an endeavor to clear away this cloud, which is a disgrace as well as a blight upon a young and important specialty? I believe our duty is clear; in fact, that it is a positive obligation, but that a false pride is standing in the way, and therefore as your chief executive, I take it upon myself to run the risk of having our action misconstrued, and say to all men *truly* interested in the science and art of orthodontia: We are ready to meet you on an equal footing—to join hands with you in any work that will tend to clear up the many unsolved, and only partially solved, problems confronting us. Years of experience and observation have induced us to accept certain apparent truths as fundamental, yet even these you are at liberty to assail from a *purely scientific* point of view, but communications teeming with bitter personal attacks, even though delicately veiled, will receive scant welcome. A conspicuous feature of our transactions has been the almost universal attempt of essayists to give credit honestly and generously to all to whom credit is due, and whenever anyone has become personal or vindictive, someone has invariably suggested, though often in a subtle way, that such methods are unwelcome. Show us a broader, better way of conducting the affairs of a society devoted to the gathering and distributing of scientific information, and you will find us open to conviction.

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I believe our true purpose is made sufficiently clear by the foregoing, so that no one can mistake our meaning, but if a more concrete statement is desirable, let me put it thus: We want the sympathy, friendship and co-operation of everyone who is truly interested in the advancement of orthodontia. Our purpose is not, however, to advance the personal interests of any individual. If these plans appeal to you as being consistent with personal freedom, and a high professional ambition, let me extend to every man, eligible to membership, a cordial invitation to join us, which will in no way interfere with your membership in other societies, nor your personal liberty, so long as you maintain a strictly ethical standard.

### **Fund for Research Work.**

When we review briefly the work of this society for the past ten or twelve years, especially in relation to the appliance problem, the question of retention, and the distribution of information regarding the wisdom of early treatment, we must all admit that it has been an important factor, and is second only as a source of information to the work accomplished by the Angle Post Graduate School, with which it is, of course, in no sense a competitor, for each is doing a distinctive and important work. This brings me to the point of suggesting a plan which has often been spoken of, but never fully executed, which I am sure will meet with your complete approval, namely, that of providing a fund to cover the laboratory expenses, at least, of all research work that is conducted with the approval of the Board of Censors; the first reports, of course, to be made to this society. There are only a few men who are naturally qualified to undertake work of this sort, and they should be encouraged, not only by being relieved of a share, at least, of the expense, but either by the Board of Censors or a special committee, appointed expressly for the purpose, doing everything possible to assist the worker in this field.

The present interest in the question of opening the intermaxillary suture is an example of the need for stimulating work of this sort. Practically nothing has been done yet to determine positively whether the suture can be opened at will, and absolutely nothing, so far as I know, to determine the nature of the subsequent changes, if it ever is actually opened throughout its entire length. The work done by various men so far is only preliminary, and final proofs have been entirely lacking, notwithstanding the fact that some of the more enthusiastic do not concede this. As a matter of fact, we do not even know but that the pressure against the teeth, which would be necessary to hold an opened suture apart, might result finally in exactly the same condition that would have resulted from moving the teeth in the first place, namely, the gradual widening of the dental arch through this pressure that is brought to bear

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against the teeth, in the effort of the displaced bones to return to their original position, thus allowing the suture to reclose.

I am exceedingly interested in the work that Doctor Dewey has been doing in connection with this question, and hope he may be encouraged to continue it, and that this society will see fit not only to take care of any future expense, but of the actual expense already involved. Work of this nature is of such inestimable value to us all that we must each do our share toward helping to solve the problem, and about all that most of us are capable of doing, in this connection, is to contribute toward a fund which will be sufficient to carry this work on in a thoroughly complete and scientific manner. I should also like to see this society reimburse Doctor Lawrence Baker for his expenses in connection with his experimental work for his paper presented at this meeting.

### **Restricted Membership.**

There has been much discussion before this society in recent years regarding the actual wisdom of a plan that was adopted at my suggestion some ten years ago, restricting our membership to exclusive specialists and teachers. This recommendation was made only after serious discussion with different men, but nevertheless I now believe that such a plan limits our usefulness. There can, I think, be no doubt of the prudence of eliminating the so-called "professional joiner," and the type of man who loves to make himself conspicuous by just talking whenever and wherever there is an opportunity. There is, however, in my opinion at least, some injustice in making all teachers eligible, and refusing membership to some few men who have spent much more time and effort in preparation, but who are nevertheless spending a part of their time in kindred work.

We know, of course, that there are some professional societies that limit their membership to a very small number of men. There are also some societies that require a certain number of years spent in the exclusive practice of their particular specialty, and that an essay, acceptable to a committee appointed to consider it, shall be presented with the application for membership. The question is, are such drastic measures really an assurance that only papers and discussions of the highest scientific value will be presented? I think not, for we all know that five years' exclusive practice, for instance, would come far short of making some men valuable acquisitions, even though by some means they were able to present an essay of sufficient merit to gain for them the coveted membership. I can also conceive of a man of broad scientific attainment, reached through years of diligent study and research, finally taking up a specialty and becoming at once a more learned and profound thinker than many of the oldest members in a society to which he would naturally like to belong.



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How perfectly absurd and even disgusting such restrictions, as those mentioned above, would then appear. It is also, doubtless, the experience of most of us to have seen or known men who have done something very creditable on one occasion, do something ill-timed, ill-advised and erratic at some subsequent time.

If the above assertions are correct, then it would seem a difficult matter to make up a membership for any society, entirely of men and women, who will at all times measure up to the highest standard; in fact, I believe it to be almost, if not quite, beyond the range of human possibilities, and I therefore suggest that we adopt a policy of greater usefulness to a greater number and add an associate membership; this associate membership to be open to any one who is actually devoting a part of his time to orthodontia, and who is sufficiently interested in the subject to desire to meet with us, and willing to pay our annual dues, which shall be the same as for full membership. These members should, I believe, enjoy full privileges, but should not be eligible to hold office.

If it is deemed wise, let all applications for associate membership receive special consideration at the hands of the Board of Censors before being presented to the society for action. My purpose, as you must surely see, is not to increase our membership but our usefulness, for there are comparatively few men to whom such a membership would appeal, but I believe these few especially need this society.

That we may add still further to our usefulness, I suggest that some means be devised to bring about a much freer discussion of the problems we meet with in daily practice, especially our actual failures. I am not prepared to say just how this can be brought about with the greatest degree of success, though an hour or two set aside expressly for the report of cases that have been failures, would, I believe, be productive of a vast amount of good. I should, at least, like to see the new Board of Censors make an effort to bring about such a discussion at our next meeting.

As a final admonition, let me urge upon you, both as a society and as individuals, the wisdom of a greater charity towards those who happen to see things in a little different light, for we must not forget that time is an important element in determining all things, and that truth will eventually prevail.

### **Discussion of Dr. Watson's Address.**

**Dr. B. Frank Gray,  
Los Angeles.**

I think the first impression that came to me in reading the address of the President was that his very genial personality shone out through every paragraph. In fact, it was just about the sort of address I would

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expect from Dr. Watson, who never does anything by halves. I feel sure he has painted an accurate picture of the conditions existing at the time of the organization of the American Society of Orthodontists. The formation of another orthodontia society was doubtless one of those things the wisdom of which becomes a matter of varying opinions; still I think it will be well to look upon it as an important incident in the course of the development of our science. Doubtless it will all work out for the best interests of orthodontia. That there should be serious misunderstandings among men who are trying to advance the interests of orthodontia is unfortunate, especially when the element of personal bitterness creeps in. I feel that as time goes on these problems will find their solution. Personally, I have often wondered at the selfishness or, if you please, the jealousy that seems to attach itself to a personal opinion. We utter our conviction on a given point: our opinion is assailed by another. We at first defend our position because we believe we have uttered the truth. Let the controversy be prolonged and men are prone to permit the element of personality to enter, and, if care is not taken, the real issue becomes secondary in importance.

I do appreciate hearing Dr. Watson speak so strongly in favor of the Angle School of Orthodontia. Certainly it is, and has been for years, the backbone of this specialty. I can conceive of no school, post-graduate or otherwise, wherein the student could gain a like amount of practical knowledge and lasting enthusiasm. Dr. Angle is a power second to none in the orthodontic world, and I am always proud to say so, both to his friends and to his enemies.

I think the wisdom of Dr. Watson's suggestion as to an "associate membership" is open to serious question. In the conception of what constitutes orthodontia, it is truly remarkable what a gap there is between the real specialist and the average practitioner of dentistry who is simply interested in the subject as a side issue to his regular work. The question is, can the American Society of Orthodontists afford to extend membership privileges to the general practitioner in the hope of educating him in the practice of orthodontia? I feel that such a course would tend toward retrogression: that in the attempt to uplift those who might seek an associate membership, we would weaken our power for good, strong, progressive work of a really vital character. The tendency would be for men to use a membership in a society of specialists as a badge of efficiency in orthodontia. How this tendency might be overcome, I can scarcely see. Would it not be well to leave this particular field of work to those dental societies who wish to establish orthodontia study clubs or sections? I trust, in any event, that what is best will prevail. It must be borne in

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mind that each specialist in orthodontia still occupies a unique position: he exerts a peculiar influence, and it is important that that influence shall be cast in the right direction.

**Dr. R. Ottolengui,  
New York City.**

There are not a great many points in this address to discuss, because discussion should arise from some slight opposition, and I do not find myself in opposition to anything in the address. The most I can do will be to agree with the President, and to elaborate one or two of the ideas. I would call attention especially to the President's statement that it is unfortunate that there has been more or less estrangement between men who he believes would be embarrassed to go before a disinterested judge and state their case. Let us consider that statement for a minute.

In this country we have created a new art and science—the profession of dentistry. Out of that has grown this wonderful specialty of orthodontia which, largely through the influence, of course, of the graduates of the Angle School, has produced this society, which has attracted the attention of the entire scientific world, especially the medical and dental men, and yet, in the very brief history of this science as a separate specialty, we are already dividing up. Gentlemen, we are almost getting to be as bad as religious people who cannot worship in the same church, and yet who claim to be worshipping the same God. This is unfortunate, and as we have only one division, it seems to me the time is ripe now to close that division and work together. It cannot be true that any one body of men already has all the knowledge, or will obtain all the knowledge, and if we are going to share it, we should share it with one another; if we cannot do this for our own benefit, we should do it for the benefit of our patients. It seems to me a great pity. I have had mothers come in and ask me if a certain man was competent to do orthodontic work, and then tell me, "Well, I understand he is a member of such a society, and that he is not a member of the other society." I have had that happen in my office. The parents of patients have noticed this schism in our family, and it seems to me, and I say it frankly, if the other side will not make overtures to us, it would be becoming and broad-minded for this society to formulate a plan and ask for a reunion, because we should, in my opinion, be together.

In regard to the restriction of the society membership, I am again in an embarrassing position, because I got in before they shut the doors. I am not quite sure we would gain much by two kinds of membership. If I understand the President's address, and what he has said, and said truly, it may be we might let in under the rule some men who would be of no advantage to us, and we might keep out men who might be an actual advantage to us. We might help them and they might help us; nevertheless, I am opposed to associate membership in the society. I do not like

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men to be in the society who must feel they have not equal rights with other men in it. I would raise the bars a little higher for that kind of men and give them equal rights. I would rather see a general practitioner sufficiently interested in orthodontia permitted to come in under a unanimous vote than to curtail his rights when he gets in.

Lastly, I am more than delighted to hear the President make a request for reports in regard to failures, because I have found it difficult to hear of failures outside of my own office, and therefore I have hesitated to speak of my own. Yet I have difficulties I would gladly discuss because other men must have to contend with the same problems, the same difficulties. I will do as the President suggests, and say a few words about a particular kind of failure that has harassed me almost beyond endurance. Of course, it is quite possible that in a short time we will be able to abandon the use of ligatures, in which case I would not have the particular troubles of which I am about to speak, but it has been, up to now, or until recently, customary to use ligatures. These ligatures have been of two kinds: the wire ligature and the silk ligature, and I have had equal trouble with them. The position is this: we, as a society, rather favor fixed appliances instead of removable ones, I mean one that is removable at the will of the patient. The whole operation of regulating with the arch depends upon its ligation to the teeth, and if ligatures are removed our work is severely hindered, if, indeed, the patient is not injured.

**Case I.** I had a boy under my care who never came back with everything in place. One of my bands would be broken at one time, and at another the wires would be off. I would repair them, and he would come back with the arch broken, etc., etc., etc. I finally became convinced that he was using his entire time between visits in undoing what I was doing. (Laughter.) Finally, he came in one day with his upper arch and one of the bands broken. I took everything off. I fitted new bands. I took an impression for a new appliance and made a new appliance for the upper arch, and he came in the next day with the lower arch all in pieces, and in his hand. I put the appliances back in the box, and wrote a note to his mother, stating that I was unwilling to continue with the case. That was a failure. I failed to manage that boy. There is no question about that, and, in a sense, while I felt I had a right to rid myself of him, still he had a lovely little brother with whom I could have done anything, but he is having his teeth regulated by another gentleman, who will make a success and get credit in that family and among their friends for doing good work where I had failed; thus the management of that kind of a patient is one of our serious problems.

## ORTHODONTIA

### Case II.

Three other cases were girls. I had arranged to treat these patients on Tuesday afternoons, because they had that afternoon off, and I hated Tuesday afternoon for what it would bring me. The first of these girls, when I first took her, was about nine years of age, a very beautiful child, and the only child. By the way, it occurs to me that where we have to deal with the *only* child in a family we are entitled to a higher fee. This girl had one simple excuse for all her derelictions. I would say to her, "Why did you take that ligature off?" "Oh, well, you know I am so nervous." "You are not nervous when you are here." "No, but, doctor, hurry up; I have not time to wait; I have to go to the park." I would put everything on, and she would come in at the next visit with nothing on but the arches. After she got better acquainted with me, she would not even have the arches on. (Laughter.) I did not object so much to her taking the arches off, as they could be replaced. But she learned to replace the arches, and, being bent, she induced an expansive force, which gradually moved the molars out of alignment. In this particular case the work should have been finished in eighteen months, but instead it has dragged along for over three years, until this winter I notified the parents around Christmas time that the child's teeth were a little worse at Christmas than they had been in September on account of her interference, and that I would not be responsible for the result, and would not care to go on with the case after the first of July. After that she kept one or two ligatures on. I hated to think of making an absolute failure in this case, so I sent for the mother. I said to her, "As I wrote you before, I am leaving town on the first of July; I am not going to take this case up next year, but I will do the best I can, and would like to have the child come in *every day*." By having the child come in every day I gradually got some of the teeth into fair position, and when I found a tooth in position I would put a retainer on that one tooth to hold it. I have obtained a fair result, considering the obstacles that were in my way, but the result is one that might be criticized as a failure by every man in this room, if he could compare the original models with the present condition. It did not look like a difficult case, yet I have given three years' service to obtain a mediocre result.

### Case III.

The second girl was exactly the reverse in temperament, perfectly phlegmatic, never speaking from the time she sat down, making no resistance to anything I did. She would smile, and say "Good-bye," and come back with nothing in place. (Laughter.) I asked her why she removed the ligatures, and she had no explanation. She was cutting the silk ligatures, and I finally discovered that she was doing so with her finger nails. So I

## ITEMS OF INTEREST

trimmed her finger nails, and found she could get rid of them in some other way. Then I used wires. It did not make any difference. Eventually I notified the parents of this child that she would have to come in every day for six weeks before I left town, and that that would be all I could do, and I received a letter from the parents saying that it would be satisfactory. I finished up as best I could, and sent my bill for the balance of the fee, and in the autumn the mother came in and said: "Doctor, are you proud of that result?" I said, "No." The mother said: "When you make it right, I will settle." I said: "Well, the balance that you owe me will not pay me for taking up this case again, but I do not propose to have you in the position to say that I declined to finish this case, so I will give you another year." I did, and I obtained a result that was satisfactory to the parents and satisfactory to me. But I did four times as much work as should have been expended on the case, and in the end I had that child coming to the office every day.

**Case IV.** The third girl was of still another type. She was the spoiled darling of a rich man and woman, but very intelligent, much more intelligent than her years would give you reason to believe; not only that, she had been allowed to believe herself the equal of any adult, if not superior of many of them. She said to me, "I want to tell you right now, at the outset, I am not the least desirous to have this work done, and it is being done against my will. If you go ahead and do it, you will not get any assistance from me." I placed bands on the cuspids, and at the next visit she handed me the bands with a smile of glee on her face, and said: "There are your bands, doctor, I hope you like them. Are you going to make new ones?" This is but a sample of her attitude. I did not get angry with her. We made slow progress. I have worked for the child for two years. Finally this spring I was not completely contented myself with the result, when she said to me: "You do not consider that finished, do you?" I replied, "Why?" She said, "You do not call that tooth straight?" I said, "No;" and she replied, "Neither do I." She then added, "Where would your reputation be if I went around showing my mouth to people?" I said, "My dear girl, I want to do the work for you; I do not care a snap of the finger for the rest of the money your people owe me. I have been more than anxious to make a success of your mouth, and I am delighted to have you talk that way." Then I put on retainers, and I said to her: "We will begin again in October." Pertly, she answered: "We will, if I feel like it."

If any of you should see a case with the original models, and then note a poor result, do not jump to the conclusion that the orthodontist was inefficient, incompetent or inattentive. There may have been mitigating circumstances.

## ORTHODONTIA

I have simply related these cases to show you that the temperament of this patient has something to do with success, and to emphasize the point in the President's address that we should be charitable when we see bad results in the practice of other men.

**Dr. J. Lowe Young,**  
**New York City.**

There is one part of the paper or address I would like to discuss briefly, and that is where the President refers to a change in our By-Laws in regard to membership. I can readily understand that there might be once in a great while a man who is not giving his entire time to orthodontia, nor teaching in some college, who would be a benefit to this society. On the other hand, I think it is very rare, and I believe our Constitution and By-Laws are so arranged that special men can be taken care of by being made honorary members. I believe there are a great many men throughout the country engaged in general practice who tell their clientèle that they are specialists in orthodontia, and who would come before this society, many of them, and say they were giving up a part of the time to orthodontia, when in reality they are perhaps only treating one case a year, and I am opposed to that part of the President's address in which he suggests that change. The rest of the address I think is splendid.

I am heartily in accord with the suggestion of creating a fund to pay for scientific research. I would be willing to give one hundred dollars toward that fund, or more if it is necessary, to get men who have a bent along these lines. Personally, I would not give up my time for such work, but for the man who does want to work along research lines, late at night and early in the morning, it is only fair we should have a fund to pay him something for his work.

**Dr. C. H. Hawley,**  
**Washington, D. C.**

I wish I could express adequately my admiration of this address in almost every detail, but I cannot readily do so. There are some points that especially impressed me, and one that is particularly characteristic of the man who made the address, and that is calling our attention to the proper attitude towards the rest of the profession. I know I have been selfish in many ways in my consideration of my work and of other men's work, but it is well, as he says, to keep in mind the good we are doing to the profession, and the things I have heard said about general practitioners in connection with orthodontia to-day, and what they have learned since the American Society of Orthodontists has been organized, have impressed me deeply. We have done a tremendous work towards the education of the profession. It means more than the education of the profession. It means work for humanity and for the children of the age.

I want to emphasize what he says about the influence of the publication of our proceedings. I think that has been a large factor in the success

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of the society. I do not think too much can be said regarding the manner in which our proceedings have been published and their wide distribution.

In regard to the question of new members, I am rather in accord with the President. I know there are difficulties. I do not anticipate there will be any great influx of membership under that division, but I do know some men I would like to see take advantage of it. I would dislike to see any advantages taken of this society in the way of a boost of private practice. I know that can be done, and is done sometimes, but I think additions to the membership should always come from personal recommendation of members themselves, and if we can control that, we can get a number of men into the society to whom we can render a great deal of good, and they in return can do us a great deal of good. I do not think that the admission of such men to honorary membership would be a wise thing. Honorary membership means something far more than that. I think a man who is entitled to honorary membership should be one who has done something extraordinary and unusual for the society to confer that honor on him, and he should be a man of such standing that he can be properly received as an honorary member. It should not be by any means new members. Our laws will show that.

In regard to the suggestion that we report our failures, I wish to say, that I have had a good many cases I would dislike very much to show, but I would like to see the other fellow's cases. (Laughter.) Reports of our failures would do us all good. Sometimes it is a matter of management and sometimes a matter of knowledge. Many of my results are due to bad management, and many of them due to a lack of knowledge. This class of reports could come under "reports of cases." That order of business has been dropped, and I think it ought to be re-established.

**Dr. Watson.** There is one point only I would like to touch on for a moment, and that is with reference to associate membership. Please understand there is nothing personal in this matter. I had one object developed in my mind, and that is to benefit a certain class of men who, while limited in number, need help. I feel there could be greater usefulness rendered by the society. Whether others feel that way or not, I do not know. I wish to say, however, that my interest is first, last, and always, for the American Society of Orthodontists.

Regarding honorary membership for the men who are not specializing, it strikes me as not altogether fitting. I think honorary membership, as Dr. Hawley has pointed out, stands for something entirely different and I should feel badly indeed to see that rule changed. Therefore, if you do not want associate membership, let us not so far forget our dignity as to admit men to this class who are not qualified for the other class.

**Dr. J. Lowe Young.** I do not believe I made myself clear on the point referred to by our President. I did not suggest honorary membership to take care of this class, but of those exceptional men, who, while not eligible for membership, would really be a benefit to this society. These men can be taken care of by honorary membership.

**Dr. Watson.** It was not the exceptional man whom I was trying to provide a place for, but the man who is floundering in orthodontia, and who needs help. However, I have no feeling in the matter one way or the other, other than the thought I had expressed in the paper.





## **Cavity Preparation.**

By PROF. ALBERT R. STARR, M.D., D.D.S., New York.

*Read before the Central Dental Association of Northern New Jersey, April, 1912.*

In coming before you with a subject so trite or hackneyed, I have no excuse to offer except to tell you that this subject was chosen for me by your Executive Committee, and was not of my own selection.

Much of the knowledge of what we now consider to be correct cavity preparation we owe to the work of Professor G. V. Black, who has carefully analyzed the conditions which predispose to caries, and has studied out the best methods of preparing the various classes of cavities to secure the proper outline, resistance, retention and convenience forms, in order to guard against recurrence of caries or the dislodgment of the filling, and at the same time to make our operations more simple and on a more scientific basis. Black has taught us that we may class all carious cavities according to their mode of origin, as: 1st—Pit and fissure, and 2d—Smooth surface cavities, and that either of these may be simple or complex. The terms compound and complex in this connection have been used interchangeably by some authors, while others make a distinction, calling those cavities which involve more than one surface of a tooth without involving the pulp, "complex," and similar cavities which do involve the pulp, "compound"; thus following out a plan of nomenclature similar to that used in describing fractures of the bones in general surgery.

In the preparation of any carious cavity we should follow a definite plan of procedure, which may be outlined as follows: 1st—Remove overhanging and frail walls; 2d—Remove softened dentine; 3d—Extend the outline of the cavity to areas of comparative immunity; 4th—Obtain proper resistance form; 5th—Obtain proper

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retention form; 6th—Obtain the desired convenience form; 7th—Give the correct bevel and finish to the enamel margins. If any sterilization of the cavity or protection for the pulp is required, this is done after all the carious dentine has been removed, or, in exceptional cases, after removing only so much of the softened dentine as can be removed without exposing the pulp. With one exception this is the plan recommended by Professor Black, the exception being that I advise removal of the softened dentine as soon as the overhanging walls have been cut away, while Black places this step, in most cases, next to the last.

In cavities of any size, I believe in the early removal of the softened dentine, so that in case we find an exposure of the pulp, and deem it necessary to devitalize the pulp, this can be accomplished prior to the completion of the other steps of the operation, and thereby save the patient a considerable amount of pain. It would be manifestly impossible, in the short time at our disposal, to go into a detailed description of all, or even many, of the types of cavities we meet with in the before-mentioned classification. All we can do will be to study a few of those we meet with most often.

### **Pit or Fissure Cavities.**

In the preparation of pit or fissure cavities the principal features to be considered are the breaking down of overhanging walls, the removal of decay, the obliteration of any remaining imperfections, such as fissures or sharp grooves extending from the cavity, securing proper retention and the correct enamel bevel. Cavities of this type are found upon the lingual surfaces of superior incisors, on the morsal surfaces of molars and bicuspids, on the facial surfaces of molars, and occasionally on their lingual surfaces when pits or fissures are there present.

#### **Cavities in Incisors.**

In preparing pit or fissure cavities on the lingual surface of superior incisors, we aim to produce as nearly as possible the boxlike form, with a slight bevel or undercut at the point where the filling is to be commenced. In shallow cavities of this type we may also bevel opposite walls, selecting preferably those walls most easy of access for our pluggers, and where there is the least danger of involving the pulp. The inward beveling of the cavity should be well within the dentine, and the peripheral enamel margin (or cavo-surface angle) should be slightly beveled outward (only beveling the outer third or fourth of the enamel thickness), in order to avoid leaving unsupported enamel rods and to lessen the danger of fracture of the margins during, or subsequent to, condensation of the filling. Do not make the cavo-surface angle too obtuse, as this

would leave the filling margin thin and weak. Beveling or undercutting the dentine toward the morsal walls of such cavities is usually to be avoided, because of the inaccessibility of such undercuts to direct mallet force and the danger of involving the pulp. (Fig. 1.)

### Cavities in Molars.

Pit or fissure cavities in molars may be simple or complex. When caries begins in a pit or depression, marking the termination of a developmental line or groove on the facial or lingual surface of a molar, with no marked fissure or fault extending from that pit, such a cavity

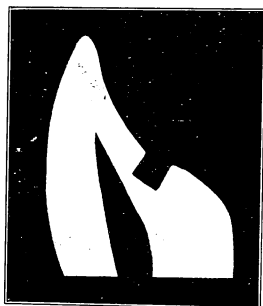


Fig. 1.

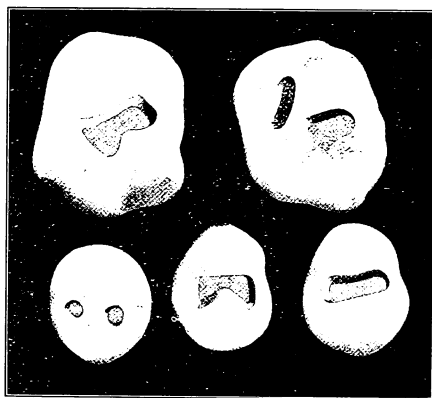


Fig. 2.

should be prepared in the same manner as the ones just described. If, however, there is a marked fissure or fault in the enamel, extending from such a pit cavity, even though the fissure shows no sign of caries, it should be cut out and included in the boundary lines of the cavity. A shallow depression or groove at the margin of a cavity would not be objectionable, but any marked fissure or V-shaped depression would interfere with the proper condensation and finishing of a filling, and would invite recurrence of caries. In many cases the developmental lines on the facial and lingual surfaces of the molars are so shallow and indistinct that the cavity may need little extension, while in other cases the operation may involve the cutting out of all the fissures or grooves upon three surfaces of the teeth.

Other fissure cavities in the molars and bicuspsids should be treated in the same manner, so far as extension of the margins is concerned, and in most cases involving the morsal surfaces we will have to cut out all the fissures on those surfaces. Exceptions to this rule would be in upper molars, where the oblique ridge is high and smooth, and in lower first bicuspsids, where the transverse ridge is prominent and shows no signs of being fissured. (Fig. 2.)

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In regard to shaping the interior of these fissure cavities our object should be to produce flat pulpal or axial walls, with the surrounding walls at nearly right angles to them, making slight undercuts or bevels at such points as are in direct line with the plugging force for our convenience in starting the filling and to assist in retention. (Fig. 2.)

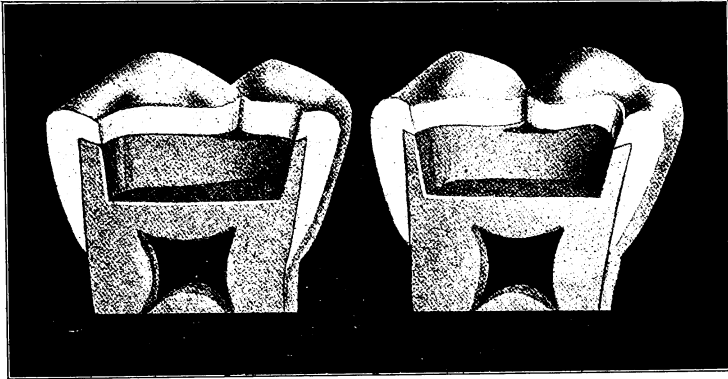


Fig. 3.

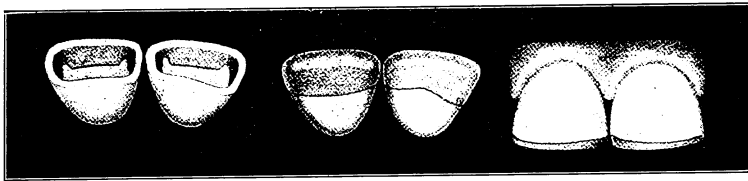


Fig. 4.

The undercuts are usually made toward the distal or in the extremities of the fissures, avoiding, as a rule, any beveling under mesial walls. The mesial should meet the pulpal or the axial wall at about a right angle, although there is no objection to giving the mesial wall in deep cavities a slight outward bevel in order to get a stronger wall and facilitate access. (Fig. 3.)

No marked beveling of the enamel wall should be indulged in, since this would result in thin margins for the filling, and prevent proper condensation and finishing.

Cavities requiring similar preparation to those just described are those involving the morsal surface of the anterior teeth in cases of mechanical abrasion or attrition. These cavities usually require special care in their preparation, since in such cases the "bite" is very strong, and the filling will be subjected to a great amount of stress. They should have a flat floor or seat, forming rather sharp angles with the surrounding walls. Beveling

of the interior should be at the expense of the lingual, rather than the facial walls, and undercuts or convenience points may be made in the various angles at the floor of the cavity. (Fig. 4.)

In filling these cavities with gold each piece should be well annealed and the filling thoroughly condensed throughout, preferably with the hand mallet. It is often advisable to finish the surface of these fillings with the combination of gold and platinum, because of its greater density or hardness. Gold inlays are often indicated in these cavities, shaping the cavity in boxlike form, with parallel or nearly parallel walls, and grooving or roughening both cavity and inlay before cementing the inlay in position. A nicely fitting inlay in these cases will protect the tooth well, can be inserted with much less strain upon frail walls, and saves the patient a great deal of pain and discomfort, to say nothing of the saving of time and nervous energy for the operator. Porcelain is seldom indicated in cavities caused by attrition, because it is not strong enough to stand the strain.

#### **Smooth Surface Cavities.**

Smooth surface cavities begin on smooth surfaces which are not kept clean, or where opportunities offer for the lodgment of food. It is in this class of carious cavities that we must pay special attention to that step in cavity preparation wherein we endeavor to secure proper outline by laying our cavity margins in zones of comparative immunity. These cavities may be subdivided in various ways. The classification I adopt is similar to, but not quite the same as, that used by Professor Black.

For purposes of study they may be subdivided according to their location and mode of origin, as follows: Class 1—Cavities in the gingival third (not pit cavities) of facial or lingual surfaces of teeth. Class 2—Simple proximal cavities in anterior teeth. Class 3—Complex cavities in anterior teeth. Class 4—Simple proximal cavities in posterior teeth. Class 5—Complex cavities in posterior teeth.

Class 1 of smooth surface cavities affects the facial more often than the lingual surfaces, and the decay tends to follow along the free margin of the gum, usually stopping, however, before reaching the proximal angles. These facts should be borne in mind in extending the outline of such cavities to prevent recurrence of caries. If the outline be extended to, or near to, the proximal angles, and beneath the free margin of the gum, the chances of recurrence of caries are much lessened. Just why this extension to the angles and beneath the free margin of the gum places the margins in zones of comparative immunity has never, to my knowledge, been satisfactorily explained, but clinical experience seems to indicate that such areas are comparatively immune.

In carious cavities of this class, little or no extension toward the mor-

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sal (beyond the line of existing caries) is required, but in cases of erosion such extension is generally indicated. We will consider first cavities of this type involving the *facial surface of anterior teeth*. Such cavities are usually shallow. Being extremely sensitive in the beginning and readily seen by the patient, they are presented for treatment quite early as a rule, possibly before reaching the progressive stage, and therefore there are no overhanging margins to remove. The first step is to remove the carious portion and extend the cavity outlines. If there be any softened dentine present, insert a sharp excavator of the hatchet or spoon type—according to the width of the cavity—at one end of the cavity, and with a quick thrust, combined with a rotary motion, force the instrument toward the opposite end. In this manner the entire layer of soft dentine can be lifted up and removed without causing a great amount of pain. Avoid picking or scraping, but try to lift out as much as possible with each cut of the instrument. We then may use a round, a square-ended fissure, or an inverted cone bur to remove what is left of the carious dentine and enlarge the cavity to proper outline. Square-ended fissure or inverted cone burs are the best to give proper shape to the axial wall or floor of the cavity. In using the inverted cone, place the flat end of the bur against the axial wall, and go around the cavity, extending the outline where necessary by undermining the walls and cutting from within outward. In other cases we may undermine the walls with a small inverted cone bur and cut down the overhanging portion with chisels. Resistance form need not be considered in cavities of this class. A flat base (or axial wall) with the surrounding walls slightly beveled, especially the gingival wall, will give the required retention form. The flat base will prevent the gold from rocking or moving under pressure, and in order to facilitate the beginning of the filling we may make convenience points—or, in other words, slight grooves, depressions or angles—at one or both ends of the cavity. All that remains to be done at this stage is to sterilize the cavity, to protect the pulp, if necessary, with cement or a lining varnish, and lastly to dry thoroughly, and give the proper bevel to the enamel margins. The finishing of the cavity margins should always be done after the application of the dam, or under conditions which will thoroughly exclude saliva.

Cavities of this class, involving the facial surfaces of the bicuspid and molars, are treated in a similar manner, except that we usually avoid undercutting under the mesial walls, and, in larger cavities (those having a greater diameter occluso-gingivally), we make our convenience or starting points at the disto-gingival and disto-morsal angles. The instrumentation for these cavities is also somewhat different. Being situated farther back in the mouth, and less accessible than similar cavities in the anterior teeth, we may have to use the right or contra-angled handpiece for the

engine instead of the straight handpiece, especially in dealing with the molars. In the less accessible cavities of this type the inverted cone bur in the contra-angled handpiece can be used to "square up" or flatten the floor (or axial wall) of the cavity, to extend and bevel the surrounding walls, and to make the convenience or starting points. In other cases round burs or square-ended fissure burs in the straight or contra-angled handpiece may be used to extend the cavity outline, inverted cone burs in the contra-angle, or perhaps hand instruments (hoe excavators and chisels) to square or bevel the walls, and small, inverted cone or round burs in the straight or contra-angled handpiece to make the convenience points. The outward beveling of the enamel margins can best be done with chisels, inlay burs or stones.

Lingual cavities in the anterior teeth are usually of the pit variety, and not in this class. Lingual cavities in the bicusps and molars are to be treated in the same manner as described for the facial ones, but usually present greater difficulties in manipulation, especially in regard to the problem of excluding moisture.

#### **Simple Proximal Cavities in Anterior Teeth.**

In Class 2, or simple proximal cavities in the anterior teeth, one of the main features to be considered is that of extension for the prevention of recurrence of caries. A careful study of the clinical history of cavities of this type shows that when not properly extended, caries is most apt to recur at the cervico-facial and cervico-lingual angles, or at any point where the margin of the cavity comes in contact with the neighboring tooth. In order to obtain the best results in securing permanence for these fillings the cavities must be extended; 1st, gingivally, to get the protecting influence of the gum margin; 2d, facially and lingually, in order that these margins may be free from contact and exposed to the action of the toothbrush and of food passing over them; and lastly, toward the morsal (or incisal) to get beyond the point of contact where this margin will be subjected to the cleansing action of the food passing over it. Whenever the susceptibility to caries is great, and the general condition of the patient will permit, these cavities should be extended to such outlines, but there may be, and frequently are, conditions which would preclude the more radical or ideal methods of outline preparation. The age of the patient, his general condition, the general tone of the pulp, the condition of the oral secretions and of the mucous membrane, the sex and occupation, esthetic conditions, the tendency to susceptibility or immunity, the shape and environment of the teeth, the habits of the individual in the care of the mouth, and various other factors, perhaps, must be taken into consideration before deciding whether or not to extend these cavities in the

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manner above described. We should keep in mind that which is now considered to be the correct method of outline preparation, and follow this method as closely as possible whenever opportunity permits, always extending our cavities to the proper form for permanency, provided such extension will not entail too much cutting (with consequent danger to the pulp) or too much suffering or disfigurement. In some cases, especially in mesial cavities in central incisors, where the contact point is close to the incisal, we may avoid cutting too far toward the incisal, and thereby weakening that corner, by making what has been called a "false point of

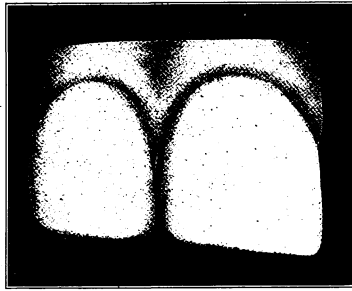


Fig. 5.

contact" (a better term would be "abnormal point of contact"), produced by a slight fulness of the filling at a point a little to the gingival of the original or normal point of contact. (Fig. 5.)

For esthetic reasons we endeavor to avoid too much extension in a facial direction in these cavities, but under certain circumstances esthetic purposes are best served by greater extension. When these cavities are filled with gold in such a manner that the gold does not come well out into the embrasure, but remains in shadow, such fillings will look dark and unsightly, whereas if the cavities are extended more to the facial, so that the light can strike the gold directly, and the filling is not shadowed by the neighboring tooth, the color will be much less objectionable. The preparation of these cavities, with a view of obtaining proper resistance form, implies securing a comparatively flat axial wall, with the surrounding walls forming rather sharp angles with it. In upper anterior teeth the angle between axial and facial walls prevents the dislodgment of these fillings in an outward direction, and in cases of strong occlusion the entire length of the facial wall should present such an angle, especially if the lingual wall is cut away or the filling much contoured. Grooving, beveling or undercutting the facial wall throughout its entire length for retention is not permissible, except when such cavities are situated chiefly on the lingual portion of the proximal surface, and are to be filled from the lin-



gual side. Grooving of the gingival wall along its whole length is also not advisable in cavities of ordinary size, since it weakens that wall unnecessarily. A rather sharp angle between the entire gingival wall and the axial would be less objectionable. Retention and convenience forms are obtained by making shallow grooves or sharp angles at the cervico-facial, cervico-lingual and incisal angles.

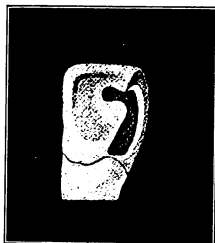


Fig. 6.

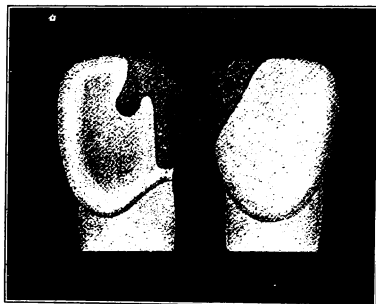


Fig. 7.

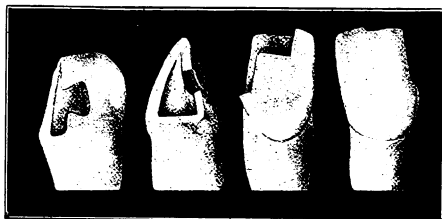


Fig. 8.

### Complex Cavities in Anterior Teeth.

Class 3, or complex cavities in anterior teeth, may present several different types. The ones most often met with, and the only ones we will have time to consider under this heading, are proximal cavities involving an incisal edge. In many cases these may be prepared in much the same way as simple proximal cavities, except that resistance and retention forms must be more carefully considered. The angles between the pulpal wall (or floor of the cavity) and the surrounding walls must be more sharply defined and the undercuts deeper. When the cavity approaches a developmental groove, that groove must be included in the outline of the cavity. All walls must be properly beveled and protected by the filling. In other cases special forms of anchorage will be indicated toward the incisal portion of the cavity. When the morsal portion of the tooth is thin, the "lingual step" anchorage is called for, and when the morsal edge is worn down by mechanical abrasion the "incisal step" anchorage should usually be selected. In most cases I prefer the lingual extension to the incisal, since

## ITEMS OF INTEREST

it involves less cutting and shows less gold. The incisal step anchorage is perhaps the stronger, but it is objectionable from an esthetic standpoint. The lingual extension may be made in several ways, either by cutting a groove in the lingual wall, in a direction toward the incisal (being careful to avoid too much weakening of the incisal corner) (Fig. 6), by cutting in the opposite direction (from incisal toward gingival) (Fig. 7), or cutting straight across toward the opposite side of the tooth, making the groove wider at its termination, and thus producing a mortise effect. (Fig. 8.) The incisal step anchorage is no doubt familiar to all of you, and sufficiently explained by the illustrations. (Fig. 8.) In cavities of this type in pulpless teeth we may utilize the pulp chamber for anchorage, or use a post of platinum, or platinum and iridium, to act as a support for the filling.

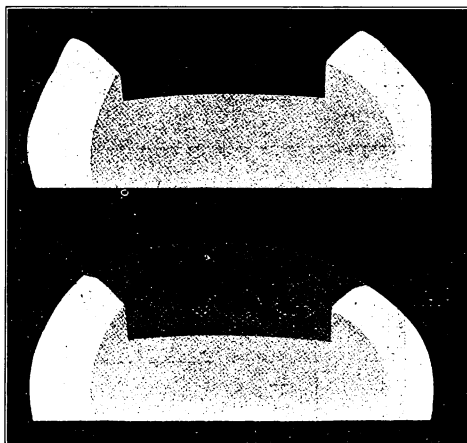


Fig. 9.

### **Simple Proximal Cavities in Posterior Teeth.**

Class 4, simple proximal cavities in posterior teeth can be dismissed with a few words, since we seldom fill them as such. As a rule these cavities are extended in such a manner as to make them complex instead of simple ones, because this extension facilitates access, decreases the liability to recurrence of caries, and does away with the frail occlusal wall which would be left if the cavity were extended to safety lines in that direction. The only excuse for not extending these cavities to the occlusal to make them complex instead of simple ones would be: first, when there is a wide, permanent separation between the teeth; second, where the adjoining tooth is missing, and there is no necessity for, or probability of, inserting an artificial substitute; and third, where we have a cavity extending along the cervical aspect of the interproxal space, with considerable

recession of the gum and ample room to get at the cavity from the embrasures. If filled as simple cavities the preparation should be much the same as that described for facial and lingual cavities of the smooth surface type.

### Complex Cavities in Posterior Teeth.

Class 5, complex cavities in posterior teeth, like those in the anterior teeth, present in many different forms. We will confine our description

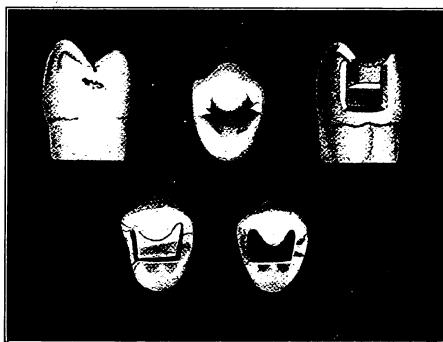


Fig. 10.

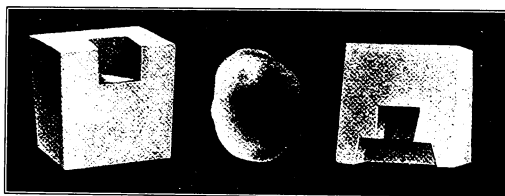


Fig. 11.

to the most common variety, which is known as the proximo-occlusal type. Under the old methods of preparation these cavities presented many difficulties, which have been largely overcome by the newer and more approved technique. Formerly it was the custom to secure retention for such fillings by undercutting the cervical, facial and lingual walls, but now we find we get much stronger anchorage and greatly facilitate the introduction of the filling, as well as securing greater immunity against recurrence of caries by resorting to the step anchorage. In studying the proper outline form for these cavities, we must pay special attention to the margins in the proximal portion, endeavoring to locate them in zones of comparative immunity. The cervical margin must be extended to, and beneath, the free margin of the gum if it approaches at all near to that boundary. Extension to that line would not be indicated with these cavities in a person

## ITEMS OF INTEREST

exhibiting little tendency to rapid spreading of caries, particularly if the interproximal space be well open; neither would it be indicated in cases of gum recession, where extensive cutting would be necessary in order to reach the gum line. The lingual and facial margins should be extended well out into the embrasures, toward, but not beyond, the facial and lingual line angles. If the extent of the carious process necessitates cutting beyond these lines, particularly at the cervical portion of the tooth, we are

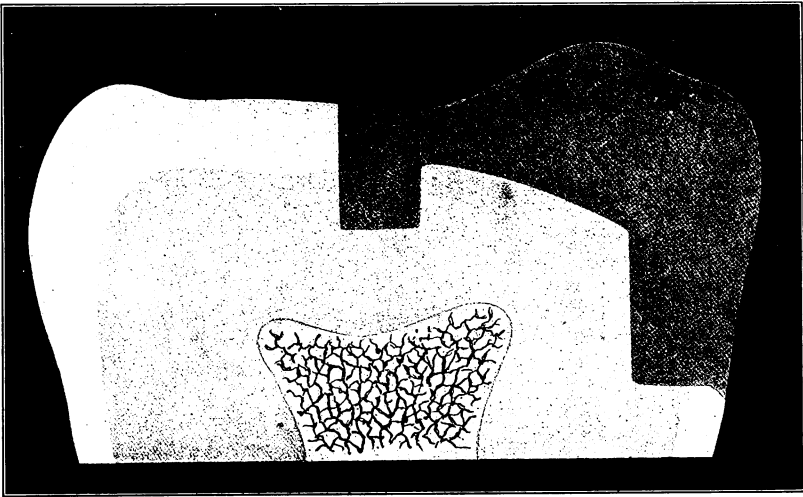


Fig. 12.

then encroaching on zones of susceptibility. All the enamel walls of the proximal portion of the cavity should be beveled in an outward direction (particularly the facial and lingual walls), in order to be parallel with the enamel rods. In the cervical portion a slight outward beveling of the cavo-surface angle is usually all that is necessary. In the morsal or occlusal portion of the cavity we should follow the lines of the fissures or grooves, cutting to the extremities of those grooves if necessary in order to get smooth margins against which to condense and finish the filling. Here any beveling of the enamel walls, other than a slight bevel for the immediate cavo-surface angle is unnecessary unless the cavity approaches the summit of a cusp or the opposite marginal ridge. Proper resistance form is obtained by shaping the cervical wall in a horizontal plane, or by giving it such a bevel that it meets the axial wall at a little less than a right angle; by having the axial wall in a vertical plane, with the lateral (facial and lingual) walls of dentine meeting it at about right angles; and by having these lateral walls, as nearly as possible, parallel with each other. (Fig. 9.) If the lateral walls converge in passing from gingival to oc-

clusal, the stress of mastication tends to force the filling toward the gingival (especially when the gingival portion of the filling is made of non-cohesive gold) and, as a result, the filling would tend to draw away from those walls at the occlusal portion. (Fig. 10.) Such a mode of preparation would increase the difficulty of properly condensing a gold filling, and would be still more objectionable if the cavity were intended for an inlay. In the step portion of the cavity resistance against direct stress of mastication is provided for by having the pulpal wall (or floor) nearly flat or horizontal, with the surrounding walls meeting it at right angles or nearly so. Retention form, or that shape of the cavity which will best resist a

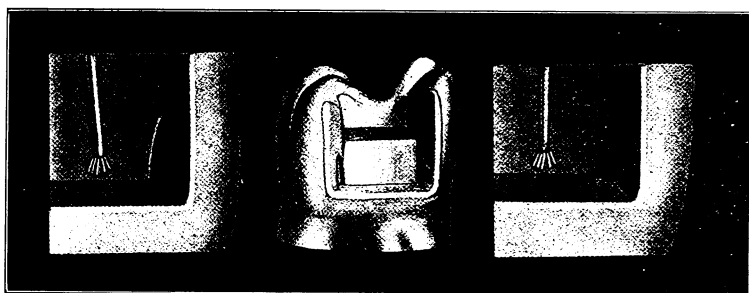


Fig. 13.

tendency to dislodgment of the filling by any lateral, oblique, or tipping force, is partly provided for by the resistance form described, but some extra provision to accomplish this end is usually required. The principal anchorage, aside from the boxlike form of the entire cavity (which enables us to take advantage of the elasticity of the dentine in a properly condensed gold filling), is secured in the step portion, and because of this fact we should be particularly careful to see that that part of the filling which joins the step with the proximal portion is of sufficient width or depth to withstand the stress.

If the step has to be narrow to avoid injury to the cornua of the pulp, we must deepen the step to get the required strength of material. The shape of the fissures, with their curvatures or ramifications, is usually sufficient to hold the filling securely against dislodgment by oblique force (Fig. 10), but if not, this can be provided for by producing a mortise or a hooklike effect in some part of the step (Fig. 11). An additional means of retention may be provided for by slightly sloping the pulpal wall of the step in a direction toward the pulp, as we cut from the axial wall toward the termination of the step, or a shallow groove with parallel walls may be sunk in the dentine of the floor of the step at, or near, its termination. (Fig. 12.) In the proximal portion a rather sharp angle between the

## ITEMS OF INTEREST

gingival and axial walls will assist in retention, as will also the slight grooves made at the linguo-gingival and facio-gingival angles for convenience in starting the filling. (Fig. 13). I prefer this mode of anchorage when filling these cavities entirely with cohesive gold, since it not only facilitates the starting of the filling, but also enables us to finish off the cervical portion of the filling before building out the contour, which is a

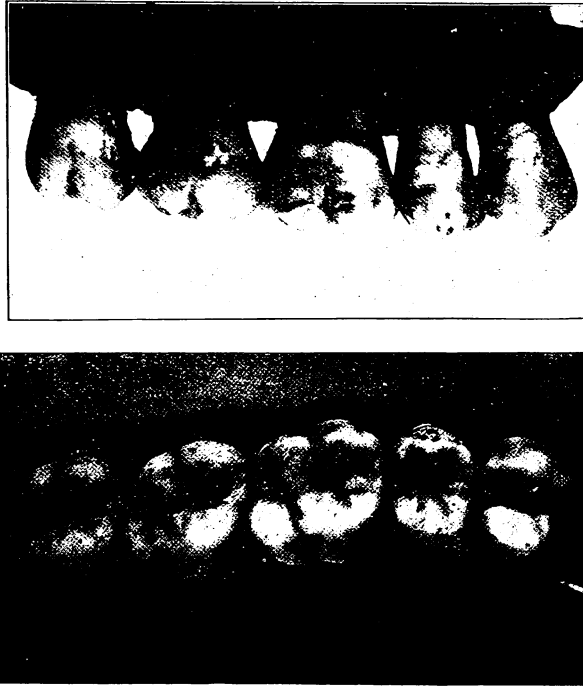


Fig. 14.

decided advantage. Without this form of cervical anchorage that part of the filling could not be finished off until the filling was completed. Proper convenience form implies the starting points just described, as well as sloping or cutting away certain walls, in order to give better access for the direct action of our plugging instruments. The mesial walls of step cavities and the facial walls of lower bicuspid or molars can frequently be inclined or cut away in such a manner as to facilitate access to the cavity.

In distal cavities in lower bicuspid and molars this is especially advantageous, because of the lingual inclination of these teeth.

Fig. 14 by courtesy of the Medico Publishing Co., Chicago. Prof. G. V. Black, Operative Dentistry.

**Technique  
of Filling.**

While we are not supposed in this paper to consider the methods of introducing the filling materials, I would like to call attention to the method advocated by Professor Black of condensing gold fillings in such a manner that we may take advantage of the elasticity of the dentine,

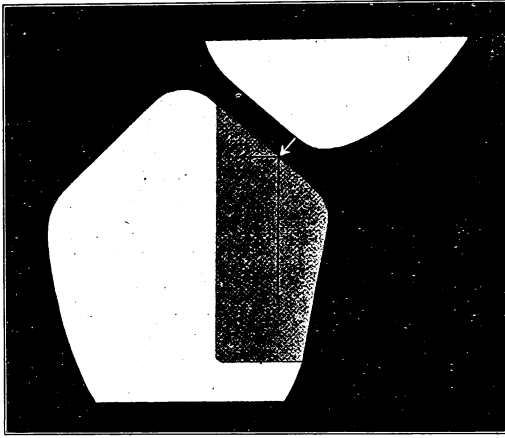


Fig. 15.

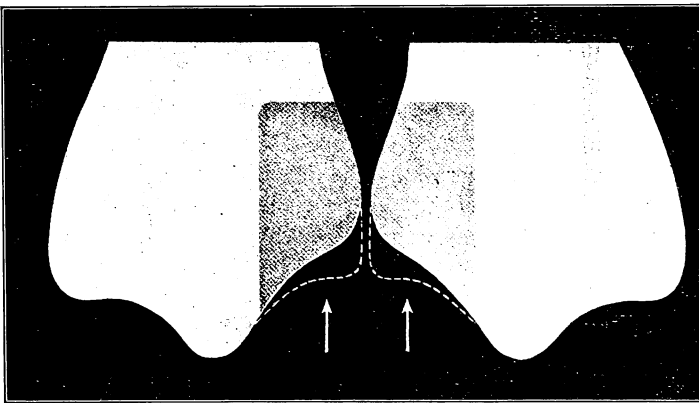


Fig. 16.

“stepping” our pluggers in such a way that we do not stretch or tear the gold, and condensing it toward the margins, wedging the last portion between the wall of the cavity and the gold previously condensed.

In bicuspsids and molars I believe we obtain better results by restoring the natural contour in a facio-lingual direction, which implies a rather

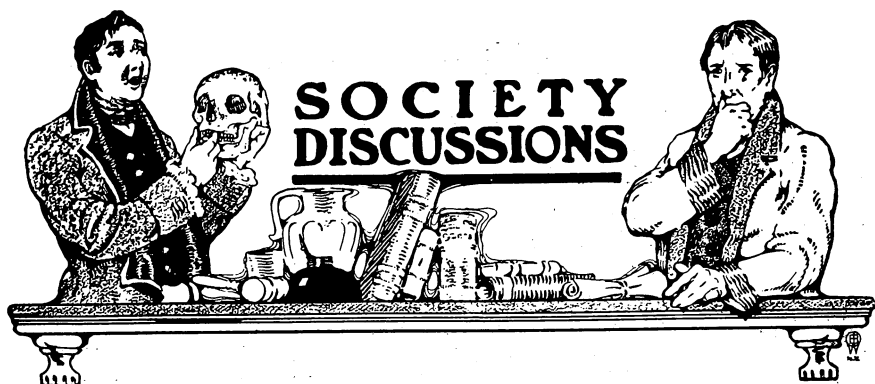
## ITEMS OF INTEREST

broad contact or "area of close approach" in that direction. (Fig. 14.) This is not the ideal contact from the standpoint of prevention of recurrence of caries, but is necessary, I believe, for the proper protection and conservation of the interproximal gum tissue. I have seen bad effects from not following out Nature's plan in this respect, and have seen those bad effects removed or corrected by changing the contact from a narrow to a broader one. In the vertical or axial plane, however, the contact point should be narrow and slight, rather than broad or flat. An abnormal point of contact in the axial plane is sometimes desirable, especially in the case of two adjoining proximal fillings, placing the contact a little more to the gingival than normal. The normal contact between these teeth is close to the occlusal, because of their bell shape and the prominence of the marginal ridges. By not restoring the marginal ridges, and by making the contact a little more to the gingival, we avoid the tendency to force the filling outward or away from the cavity by the opposing teeth. (Figs. 15 and 16.)

The opposing force then is directed against inclined planes in such a manner as to force the filling toward, rather than away from, the cavity. This applies as well, and even more, to inlay work than to fillings. In inlay work we would do well to follow out the plan advocated by Dr. Bödecker in his recent book on "Metallic Inlays," by endeavoring to make undercuts in cavity and inlay to correspond or come opposite to each other, and also, as far as possible, to take advantage of the crushing strength, rather than the tensile strength, of the cement in holding our inlays in position.

In this paper, which has been necessarily rather long because of the scope of the subject, I have endeavored to confine myself as far as possible to the treatment of the types of cavities most frequently seen. In this work, as in many other operations the dentist is called upon to perform, we cannot be guided entirely by any set rules or methods of procedure, but must be guided largely by circumstances and the exercise of discriminating judgment. He who cannot rise to the necessities of the occasion and adapt himself to the varying conditions which require the exercise of good judgment, and a certain amount of mechanical ingenuity, is poorly fitted for his chosen profession. We should be eclectic in our practice, and endeavor to cultivate a sense of accuracy in determining what method or methods will be best adapted to any individual case. Conservatism rather than radicalism would seem to be the dominant factor in successful cavity preparation.





## Central Dental Association of Northern New Jersey.

The regular monthly meeting of the Central Dental Society of Northern New Jersey was held at Davis's Parlors, Newark, N. J., on Monday, April 15, 1912.

In the absence of President Chitterling, Vice-President Kussy called the meeting to order.

A quorum being present, on motion the calling of the roll was dispensed with.

The Secretary read the minutes of the last two preceding meetings, and, there being no errors or amendments, they were approved as read.

Dr. Alfred R. Starr read a paper entitled "Cavity Preparation," which appears in this issue.

### Discussion on Dr. Starr's Paper.

**Dr. Sutphen.** I have heard very many papers on operative dentistry and the preparation of cavities, but I do not think in all my experience I ever heard one which so fully covers the ground, and in such a concise and definite way.

We have had described to us to-night the preparation of cavities for almost every condition which we meet in the mouth; it has taken, I think, less than an hour, and with our knowledge of the preparation of cavities thus acquired, we can go to our offices to-morrow and properly prepare almost any cavity.

I do not think I can say anything more complimentary to the essayist of the evening than I have done in those few words.

More than anything else have I been pleased with the conservative attitude which has been taken by the essayist. In many of the papers which you have heard, operative procedure has been altogether too radical.

## ITEMS OF INTEREST

to meet everyday conditions. We are not working upon blocks of wood or pieces of metal, but upon living tissue of sensitive patients, most of whom cannot endure the preparation of the cavity according to ideal theories. It is only here and there we find a patient who can, and we have to meet all conditions; the work must be done, and we have to do it, and if we cannot do it in the ideal way we must do it to the best of our ability, and the ability of the patient to bear the operation. Teeth must be saved, and they can be saved without these severe operations.

The coming of gold and porcelain inlays has done away very largely with the preparation for an ordinary filling, and, as far as my experience has gone, this has been in the right direction, and is saving a great deal of pain to the patient and a great deal of time in the preparation of the cavity for the filling, both for the patient and the operator. Of course, there are many cases where there is necessarily a larger destruction of tooth substance for the inlay, but it has been in such a way that the patient does not suffer so much as in the ordinary preparation for gold and amalgam fillings.

My experience for more than twenty years in dental societies has been that we have had too much of theory and too little practice, and I am always more than pleased when I learn that we are to have a practical paper. We are practical people; we deal with practical subjects. Theory is necessary, scientific research is necessary, and we must have it, but I would prefer reading those papers in the seclusion of my library, rather than to spend an evening in hearing one read before a dental society, and I think a great deal more good would come to us as practical dentists, and in the good we could do our patients and the community, if we could have more of these practical papers in our meetings. Let scientific research go on by all means, but let us read of it in our dental journals. Whenever I listen to a truly scientific paper I only get about one-third the benefit that I do from its reading afterward, while with a practical subject, if you see it before you, it is more firmly impressed upon your memory, and you are able more intelligently to grasp it and study it afterward.

I have but few words to say, but I have been  
**Dr. Kahne.** very deeply impressed to-night with the points on cavity preparation which the essayist has brought out.

As he has said, we find a great many cases in practice where we have to use our own judgment, but there are certain principles of cavity preparation which have been brought home to us to-night, and which we shall not forget.

The principle of all that is that the cavity walls should always be at right angles to the floor of the cavity; that undercuts should not be made so that there would be unsupported walls of enamel.

## SOCIETY DISCUSSIONS

Another point is the step to secure our fillings, which has produced almost a revolution; and the next point for which I wish to thank the essayist most, because of his conservativeness, is his view on extension for prevention. That is a very good procedure in a great many cases, but very often there is too much of it done; yet if, as the essayist has brought out in his paper, our fillings are not brought well up to the point of contact, and the contact point is not broad enough transversely, we will have more or less recurrences of decay.

Cavity preparation is a subject which it is very hard to speak about unless you have the actual diagrams present, because each cavity shows a different aspect.

But those are the points which impressed me most, and I think they are practical points which everyone can take home with him to-night, and which will benefit us all.

It was not only a pleasure, it was a treat to me  
**Dr. Strausburg.** to be here to-night and hear the excellent paper given us by Professor Starr.

The essayist so clearly demonstrated cavity preparation that I do not think I have anything to say in that respect.

There are two points I would like to speak of: the beveling and the contact points.

Of course, Dr. Starr has mainly spoken about those things, and he very well said that a very slight bevel on gold fillings will not amount to anything of importance, but will curl up. However, that is different in gold inlays; a slight bevel in gold inlays is of very great importance to protect the margins. It is the tendency of a great many operators to advocate butt joints in these inlays, but butt joints are only used, and should be only used, in connection with porcelain, otherwise we will not protect the enamel of our cavities.

In gold inlays we can produce a contact point without any separation whatever, and after the wax pattern is produced or made, instead of having the wax pattern in contact with the adjoining tooth, it is my custom to separate and make a slight space about the middle third or the beginning of the middle third, representing the contact point of the inlay. This not only facilitates the removal of the wax pattern, but it will prevent any distortion in removing it, and after it is removed I add wax to that part which represents the contact point, not only equal to the amount removed, but in excess of that. When we have our inlay cast, we have a filling that will not go into the cavity at first, but by grinding off and polishing we will be able to have a filling that just goes into its place, thereby making ideal contact points without separation of the teeth.



## ITEMS OF INTEREST

**Dr. Starr.** I do not know that much is to be said in closing this discussion, which has been very complimentary. You have treated me very kindly.

It is rather a difficult matter to go over the ground in the short time of a single evening and discuss cavity preparation as it should be discussed. I am afraid I endeavored to offer a little too much; I should have taken up a few of the more salient points, perhaps, and enlarged upon them, but, as I said before, I endeavored to cover as much ground as I could in a short space of time.

The point brought out by Dr. Strausburg I think is an excellent one, and the method he advocates for contact points on inlays is good.

On motion, a vote of thanks was extended to Dr. Starr for his excellent paper, and the society adjourned.





**The National Dental Association Reorganizes  
in Accordance with the Plan of the  
American Medical Association.**

With great pleasure we announce that the National Dental Association, at the recent Washington session, formally and finally adopted a Constitution and By-Laws, drawn in conformity with the plan which has made the American Medical Association so signally successful.

For those who may desire to study the Constitution and By-Laws in detail, and all State Society officers should do so, we publish the same complete in this issue. Others may be content with a brief outline of the general plan, which is as follows:

The National Dental Association itself in future will receive members from State Societies only, except in the case of our territories and territorial possessions and the members of the Army and Navy Dental Corps, for which special provision is made. This should be a great aid to the State Societies in helping them to increase their membership, since any man who may desire to become a member of the National Dental Association must first become affiliated with his State organization.

The National Dental Association will also be of direct benefit to individuals, because it will give every member in good standing a certificate of membership, and it is proposed that all members should frame

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and hang these certificates in their offices, that patients may learn to discriminate between progressive dentists, contributing to and profiting by the advances in our profession, and those others who are either quacks, or else leeches who take all and contribute nothing.

### **The Journal.**

It is the purpose, of course, to establish a Journal of the National Dental Association, and when published such Journal will be distributed free to all members, at which time the dues will probably be two dollars annually. But at the outset, and until such time as the Journal publication is begun, it was thought best to fix the annual dues at one dollar. It is needless at this time to report the many arguments that were offered for and against this reduction of dues. Suffice it to say that the Reorganization Committee studied this problem from every angle, and has been in correspondence with State Society leaders from all sections. At Washington there was first a public meeting, and then a lengthy private conference between the Reorganization Committee and a number of State Society officers, and the final consensus of opinion was that the Association could be most rapidly built up if the annual dues at first were limited to one dollar.

It would be manifestly impossible, however, to include a high-class dental journal at so low a price. But when the journal is established there will be no need to make the dues higher than two dollars, one dollar of which would go to the journal fund. At first sight this might seem to be very much lower than the dues of the American Medical Association, but in reality it would be about the same, as the Dental Journal would be a monthly (twelve numbers for one dollar), whereas the Medical Journal is a weekly (fifty-two numbers for four dollars. In each case one dollar is set aside for the actual expenses of the association.

### **The House of Delegates.**

The business of the Association during the annual sessions will be conducted by a House of Delegates, as in the American Medical Association, but it is believed that the system of representation is an improvement over that of the American Medical Association. In the plan adopted by the National Dental Association, effort has been made to combine in one house, the fundamental principles embodied in the Senate of the United States, and the House of Representatives. In our National



Congress we have two houses, in one of which all localities are equally represented, the smallest State having the same number of Senators as the largest; whereas in the lower house, representation is per capita of population. Thus one body protects the interests of localities, while the other is dominated by numbers only.

In the House of Delegates of the National Dental Association these two schemes of representation have been combined in a single body. Every State Society, affiliated with the National Dental Association will have the right to elect one delegate, regardless of the number of its members who may regularly join the national organization. If one hundred of a State Society's members join the National, it may elect an additional delegate, and still another for every two hundred thereafter.

**The  
Transition.**

In planning a reorganization of an association care must be taken that the transition from one form of government to another totally different, may be completed without friction. What is desirable is an evolution not a revolution. It has always been understood that the new constitution is to become effective in 1913, but lest there might be misconception in regard to this, a definite plan has been adopted. The old constitution is still in operation and the session of 1913 will be conducted by the officers elected in Washington. At a stated meeting of the 1913 session the first House of Delegates will convene, and there will be opportunity for an impressive function, as the reins of government are transferred. At this meeting of the House of Delegates there will be an election of officers, and all necessary committees will be appointed, after which adjournment will be taken and these same men will sit as the House of Delegates in 1914, by which time it is hoped that the change from the old regime to the new will be fully comprehended by all, and the National Dental Association will have taken its merited place among the great organizations of the world.

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**Panama-Pacific Dental Congress.**

At the recent session of the National Dental Association in Washington, the Pacific Coast States sent an imposing delegation of its leading practitioners to inform the profession of this country that a Dental Congress, international in character will be held in San Francisco during



the Panama-Pacific World's Fair in 1915 and to invite the National Dental Association to combine with the Congress. To this end the National Dental Association voted unanimously to hold no regular scientific session in 1915, but to recommend that its members join the Congress and unite with those in charge, to make it an occasion worthy of the good name of American Dentistry.

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## **Constitution and By-Laws of the National Dental Association**

**Unanimously Adopted at Washington, D. C., Sept. 12, 1912.**

### **ARTICLE I.—*Name.***

The name of this organization shall be the National Dental Association.

### **ARTICLE II.—*Object.***

The object of this Association shall be to promote the art and science of dentistry. To achieve this the Association shall endeavor to unite the dental profession of the United States into one compact body, thus creating a power the units of which, working with a harmony of purpose, will foster fraternal relations and intercourse among dentists; safeguard the material interests of the profession; elevate the standards and improve the methods of dental education; secure the enactment and enforcement of just dental laws, while aiming at a unification of State dental statutes, and enlighten and direct public opinion in relation to oral hygiene, dental prophylaxis, and advanced scientific dental service.

### **ARTICLE III.—*Membership.***

The membership of this Association shall consist of the present members, and such members of the Constituent Societies, and such members of the Army Dental Corps, and of the Navy Dental Corps, and such others as shall be elected in accordance with the By-Laws, as hereinafter provided.

### **ARTICLE IV.—*Constituent Societies.***

SECTION 1.—State and Territorial Societies which have, or which hereafter may, become organized in conformity with the general plan of the National Dental Association, and which have declared their allegiance to said National Dental Association, and which shall agree to the formation and perpetuation of the House of Delegates, shall be recognized as Constituent Societies.

SECTION 2.—The term "State Society" shall be understood to mean the representative dental organization of any one of the States which have been received into the Union, and whose active membership is restricted to legal practitioners practicing within the legal borders of





such State. The term "Territorial Society" shall apply in similar manner to the representative dental organization of any of the territorial possessions of the United States. Provided, however, that the term "Territorial Society" shall be held to include the societies of the District of Columbia, of the Canal Zone, and of the insular possessions of the United States.

ARTICLE V.—*The House of Delegates.*

SECTION 1.—There shall be a business body known as the House of Delegates of the National Dental Association. It shall consist of delegates elected by the Constituent Societies, and by the other dental bodies named in Section 2 of this article. The House of Delegates shall represent the delegated powers of the members of the National Dental Association, and shall be the national representative body of the Constituent Societies. It shall elect the general officers of the Association and a board of nine trustees, and shall transact all the business of the Association, public, professional, or scientific, not otherwise provided for. The trustees shall be members of the House of Delegates, without the right to vote.

SECTION 2.—The total voting membership in the House of Delegates (exclusive of the Board of Trustees) shall be as follows: One delegate shall be allowed from each Scientific Section, from the Army Dental Corps, from the Navy Dental Corps, and one from each Constituent Society. Each Constituent Society shall be entitled to one additional delegate if one hundred of its members become regularly enrolled as members of the National Dental Association; and one more delegate for each additional two hundred members enrolled.

*Explanatory—Regardless of enrollment in the National Dental Association each Constituent Society would have 1 delegate.*

*With 100 members in the National, 2 delegates.*

*With 300 members in the National, 3 delegates.*

*With 500 members in the National, 4 delegates.*

*With 700 members in the National, 5 delegates.*

*With 900 members in the National, 6 delegates.*

*With 1100 delegates in the National, 7 delegates.*

*With 1300 members in the National, 8 delegates.*

*With 1500 members in the National, 9 delegates.*

In case any States do not affiliate, all present members of the National residing in such States may meet together at the first meeting of any session of this Association, and elect one delegate to represent them in the House of Delegates.

ARTICLE VI.—*Sections.*

Section 1.—This Association shall be divided into three sections as follows:

## ITEMS OF INTEREST

Section I shall have charge of operative dentistry, nomenclature, literature, dental education and allied subjects.

Section II shall have charge of oral surgery, anatomy, physiology, histology, pathology, etiology, prophylaxis, oral hygiene, materia medica and allied subjects.

Section III shall have charge of prosthodontia, orthodontia, metallurgy, chemistry and allied subjects.

SECTION 2.—New sections may be created or existing sections discontinued or modified by the House of Delegates.

### ARTICLE VII.—*Branches.*

In addition to the existing Southern Branch the House of Delegates may create such branch organizations as may be deemed essential to the welfare of the National Dental Association and of the dental profession.

### ARTICLE VIII.—*Annual Sessions.*

The National Dental Association shall hold an annual session at the time and place chosen by the House of Delegates. The time and place for the session, however, may be changed by the unanimous vote of the Board of Trustees, but not later than sixty days prior to the time selected for the session.

### ARTICLE IX.—*Officers.*

SECTION 1.—The general officers of the Association shall be a president, three vice-presidents, a general secretary and a treasurer.

SECTION 2.—These officers shall be elected annually by the House of Delegates, to serve for one year, or until their successors shall have been elected and installed.

SECTION 3.—No member of the House of Delegates shall be eligible to the office of president or vice-president.

### ARTICLE X.—*Board of Trustees.*

SECTION 1.—The Board of Trustees shall have charge of the property and of the financial affairs of the Association.

SECTION 2.—Three trustees shall be elected annually by the House of Delegates, each to serve for a period of three years.

SECTION 3.—No voting member of the House of Delegates shall be eligible to election on the Board of Trustees, but the Board of Trustees after election shall be members of the House of Delegates, without the right to vote.

SECTION 4.—No member who has served one full term as a member of the Board of Trustees, shall be eligible for re-election on the Board until a period of three years has elapsed, provided that this does not apply to ex-officio members of the Board.



(*Resolved*, That the present Council shall be members of the First Board of Trustees, and shall serve out their present terms, and they shall also be eligible for re-election for one full term of three years.)

ARTICLE XI.—*Dues and Assessments.*

SECTION 1.—The annual dues in this Association shall be one dollar.

SECTION 2.—Members of the Army and Navy Dental Corps may be elected to full membership, with all privileges on payment of the annual dues.

SECTION 3.—All members of the National Dental Association in good standing shall receive the Journal free. To members of State Dental Societies, not enrolled in the National Dental Association, the subscription to the Journal shall be two dollars; and to all others the subscription shall be three dollars; provided that if this should be in conflict with the rules of the U. S. Postal authorities the Board of Trustees may reduce the general subscription to two dollars.

SECTION 4.—In case of need, in order to raise funds, the House of Delegates may order an assessment not to exceed two dollars in one year, for each member; or an assessment not to exceed fifty dollars in one year upon each Constituent Society, but not both.

ARTICLE XII.—*Amendments.*

The House of Delegates may amend or alter this Constitution at any annual session, due notice having been given at a previous meeting of said annual session, provided unanimous consent may be obtained. Otherwise all amendments must lie on the table until the annual session next following their introduction, at which time a two-thirds vote will be requisite for their adoption. In the latter procedure due notice of the substance, or if not too lengthy, the exact wording of the proposed changes must be sent to each member of the House of Delegates with the regular notice of the annual session.

**By-Laws**

**Book 1. Membership**

CHAPTER I.—*Qualification for Active Membership.*

SECTION 1.—A member in good standing of a Constituent Society shall be eligible for membership in the National Dental Association on presentation to the general secretary of the following: (1) Satisfactory evidence of the above; (2) written application for membership on the prescribed form; (3) the annual dues.

SECTION 2.—Members of the Army and Navy Dental Corps may become members in like manner, upon presenting satisfactory evidence of membership in said Corps.

## ITEMS OF INTEREST

SECTION 3.—Members must retain their membership in Constituent Societies. Upon official notification from a Constituent Society that a member has lost this qualification, the secretary will erase the delinquent's name from the roll of membership of this Association, and notify him of this action, stating the reason therefor.

SECTION 4.—Any member who has forfeited his membership in accordance with Section 3, shall be reinstated on his request by the general secretary, on presentation of satisfactory evidence that his qualification has been restored by the Constituent Society.

SECTION 5.—Any member who shall fail to pay his annual dues for one year, unless absent from the country, shall be dropped from the roll of members, provided that due notice shall be previously given to the member by the general secretary. Any member who has been suspended for non-payment of dues shall be restored only when all his dues have been paid.

SECTION 6.—A member who becomes a resident of another State, to retain his membership in the National Dental Association must become a member of the Constituent Society in the State to which he has removed.

### CHAPTER II.—*Registration.*

SECTION 1.—No member shall take part in the proceedings of the Association or of any of the Sections until he has registered his name and address with the proper officer or committee and has paid his annual dues for the current year.

SECTION 2.—A member desiring to take part in the scientific work of the American shall indicate, when registering, the section in which he wishes to be enrolled.

### CHAPTER III.—*Delegated Members, Honorary Members, Associate Members, etc.*

SECTION 1.—Members delegated to the House of Delegates shall register and pay their annual dues, thus qualifying as members of this Association, before taking their seats in the House of Delegates.

SECTION 2.—Dentists who have arisen to pre-eminence in foreign countries shall be eligible to honorary membership. They may be elected by the House of Delegates on nomination by a Section, but not more than three honorary members shall be elected in any one year.

SECTION 3.—Associate membership may be granted by the House of Delegates to distinguished visitors. Such membership accords all privileges for one year, including the Journal of the Association.

SECTION 4.—Membership of all classes may be declared forfeited by the House of Delegates for reasons considered sufficient by that body



## Book II. Delegates

### CHAPTER IV.—*Qualifications, Terms, Apportionment and Registration of Delegates and Alternates.*

SECTION 1.—No one shall serve as a member of the House of Delegates who is not a member of this Association.

SECTION 2.—Delegates and alternates from the Scientific Sections and from the Army and Navy Dental Corps shall be elected for one year. Delegates and alternates from Constituent Societies shall be elected for two years. Constituent Societies entitled to more than one delegate shall elect them so that one-half, as near as may be, shall be elected each year.

SECTION 3.—Beginning with the annual session of 1913, the House of Delegates shall be constituted as described in Article V of Section 2 of the Constitution. The number of delegates to which each Constituent Society may be entitled shall be based on the number of members from whom dues for the current year shall have been received by the General Secretary of this Association at least thirty days prior to the first day of the Annual Session of this Association.

SECTION 4.—In the cases of those Constituent Societies which do not hold meetings of the current year at least forty-five days prior to the Annual Session of this Association, the number of delegates shall be estimated on the dues for the previous year received by the General Secretary of this Association.

SECTION 5.—To be represented in the House of Delegates the officers of each Constituent Society shall file with the General Secretary of this Association, at least thirty days prior to the first day of the Annual Session, a list of the names of its delegates and alternates.

SECTION 6.—Previous to the Annual Session the General Secretary of this Association shall prepare and have printed a list of the delegates and alternates, elected by the various Constituent Societies; also the number of paid members of each. In case any Society has elected more delegates than the number to which its paid membership shows it to be entitled, the General Secretary in preparing the list shall drop one or more names from the list from such Society, beginning at the bottom of the list, until the proper number of names remain.

SECTION 7.—At any election of delegates, the body electing may at the same time elect as many alternates as delegates, and the alternate of each delegate may sit in his stead in the House of Delegates in the absence of the regular delegate from any annual session, except as provided in Section 9 of this chapter.

## ITEMS OF INTEREST

SECTION 8.—Every delegate must present his credentials and be duly registered by the General Secretary, or other designated officer or committee before taking part in the business of the House of Delegates. Credentials shall include a certificate duly signed by the proper officials of the body delegating him, and such other evidence as may be required.

SECTION 9.—The credentials of a delegate having been accepted and his name placed on the roll of the House of Delegates, he shall remain the duly accredited delegate of the body which he represents until final adjournment of the session, and his place shall not be taken by any other delegate or alternate.

### CHAPTER V.—*Procedure of House of Delegates.*

SECTION 1.—*Order of Business.*—The following shall be the order of business, unless changed by unanimous consent:

1. Call to order by the President.
2. Roll call.
3. Reading and adoption of minutes.
4. Reports of officers.
5. Reports of committees.
6. Unfinished business.
7. New business.

SECTION 2.—No new business shall be introduced into the House of Delegates on the last day of the annual session unless with unanimous consent; and such new business, whether in the form of a resolution, memorial or otherwise, shall require a unanimous vote for final action.

SECTION 3.—The House of Delegates shall be governed by Roberts' Rules of Order, when not in conflict with these By-Laws or with the rules of the House.

SECTION 4.—One-fifth of the voting members of the House of Delegates shall constitute a quorum.

### CHAPTER VI.—*Meetings of the House of Delegates.*

SECTION 1.—The House of Delegates shall meet annually on the day preceding the opening of, and at the same place as, the annual session of the Association.

SECTION 2.—Special sessions of the House of Delegates shall be called by the President, on written request of a sufficient number of delegates to represent a majority of the Constituent Societies by mailing a written or printed notice to the last known address of each delegate, at least twenty days before such special session is to be held, in which shall be specified the time and place of meeting and in general terms the objects of such special session, and no other business shall be transacted thereat. The time



and place for the meeting of a special session must be given in the requests signed by the delegates.

CHAPTER VII.—*Nomination, Election and Installation of Officers, Trustees, Honorary Members, Associate Members, etc.*

SECTION 1.—Nominations for office, except that of treasurer, shall be made orally, but no nominating speech shall exceed two minutes in length. Any nominee receiving the majority of the votes cast shall be declared elected. The treasurer shall be nominated by the Board of Trustees, who shall present two names.

SECTION 2.—All elections shall be by ballot, and a majority of the vote cast shall be necessary to elect. In case no nominee receives a majority of the votes on the first ballot the nominee receiving the least number of votes shall be dropped and a new ballot held. This procedure shall be continued until one of the nominees receives a majority of all votes cast, when he shall be declared elected.

SECTION 3.—The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the afternoon of the third day of the annual session.

SECTION 4.—Nominations for honorary membership from the Sections shall be referred without debate to the Committee on Sections and Section Work, which shall consider the relative scientific attainments and professional character of the nominees, and shall report its conclusions to the House of Delegates for action. The election of honorary members shall immediately follow the election of officers.

SECTION 5.—Nominations for associate memberships may be made by the Sections at any meeting of the House of Delegates, and may be confirmed, with or without reference to the Committee on Sections and Section Work, at the will of the majority of the House of Delegates.

SECTION 6.—The general officers of the Association shall be installed at the close of the last meeting of the annual session, at which they are elected.

Book III.

CHAPTER VIII.—*Officers, Trustees and Committees.*

SECTION 1.—*President.*—The President shall preside at the general meeting and at the meetings of the House of Delegates, and shall perform such duties as custom and parliamentary usage require. On the morning of the first day of the annual session following his election he shall deliver an address at the general meeting not exceeding forty minutes in length.

SECTION 2.—*Vice-Presidents.*—The Vice-Presidents shall assist the President. During his absence or at his request one of them shall officiate in his place. In case of the death, resignation or removal of the President, the vacancy shall be filled by the ranking Vice-President.

## ITEMS OF INTEREST

SECTION 3.—*General Secretary.*—The General Secretary shall give due notice of the time and place of all annual and special sessions of the Association and of the House of Delegates, by publishing the same in the Journal of the National Dental Association and other journals. He shall notify members of committees of their appointment, and of the duties assigned to them. It shall be his duty to verify the credentials of members of the House of Delegates and to provide a registration book for them, in which shall be recorded the name of each delegate in attendance at each session. He shall collect all dues and transmit the same to the treasurer, as may be directed by the Board of Trustees, and as receipt for dues shall issue certificates of membership. He shall conduct all correspondence required of him by the Association or by the House of Delegates, or which may become necessary in the rightful conduct of his office. He shall keep in separate books the minutes of the general meetings and of the House of Delegates. He shall prepare a roll of the delegates attending each session to facilitate voting by roll call. He shall prepare for publication the official programme of each session, and shall perform such other duties as may be directed by the Association or by the House of Delegates, and shall receive a salary to be fixed by the Board of Trustees.

SECTION 4.—*Treasurer.*—The Treasurer shall be the custodian of all moneys, securities and deeds belonging to the Association, and shall hold the same, subject to the direction of the Board of Trustees. He shall give to the Board of Trustees a suitable bond, and shall receive a salary to be fixed by the Board of Trustees.

### CHAPTER IX.—*Board of Trustees.*

SECTION 1.—The Board of Trustees shall have charge of all properties and of the financial affairs of the Association. At the first meeting of the Board after the annual session of the Association it shall organize. In addition to the nine elected members of the Board of Trustees, the President and General Secretary shall be *ex officio* members and shall hold the same positions in the Board as in the Association, but the Board shall elect a Recording Secretary, who shall keep its records and make its reports.

SECTION 2.—*Journal.*—It shall be the duty of the Board of Trustees to provide for and superintend the publication of the Journal of the National Dental Association, and of all proceedings, transactions, and memoirs of the Association. It shall have full discretionary power to omit from the Journal of the National Dental Association, in part or in whole, any paper that may be referred to it by any of the Sections. It shall appoint a general manager and editor of the Journal, which two positions may be





held by one person, and such assistants as may be necessary, and shall determine the terms and conditions of their employment:

SECTION 3.—*Meetings During Annual Sessions.*—During the annual session of the Association the Board shall hold meetings as often as may be deemed necessary by the President, and all matters referred to it by the House of Delegates shall be reported on within twenty-four hours, if so ordered by the House.

SECTION 4.—*Board Reports.*—The Board of Trustees shall have the accounts of the Treasurer and of the Journal office audited annually, or oftener if deemed necessary, and shall make an annual report on the same to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year and the amount of all property belonging to the Association.

SECTION 5.—*Vacancies.*—In case of vacancy in the office of Treasurer or Board Secretary, the vacancy shall be filled by the Board of Trustees.

SECTION 6.—*Salaries.*—The Board of Trustees shall fix the salaries of the General Secretary, the Treasurer, the Board Secretary and of the Journal manager and the editor.

SECTION 7.—*Regular Meetings of Board.*—Regular meetings of the Board of Trustees shall be held immediately after the annual session of the Association and at the same place, and on the first Monday in the month of February, of each year, at such place as the Board may select at its first meeting.

SECTION 8.—*Special Meetings of Board.*—Special meetings of the Board of Trustees may be called at any time by the President, or by request of five members of the Board, due notice of which must be given to each member of the Board at least five days in advance of the meeting. The general object of a special meeting must be stated in the notice, and no other business may be transacted.

SECTION 9.—*Annual Sessions, Exhibits, Clinics and General Arrangements.*—The Board of Trustees shall have full control of all arrangements for the annual sessions, and shall provide meeting places for the Association, the House of Delegates, and the various Sections. It shall also have control of all clinics and of all exhibits. The Board of Trustees in their discretion may appoint a local committee of arrangements, which shall at all times be under the control of the Board of Trustees.

#### CHAPTER X.—*Committees.*

SECTION 1.—Committees shall be classified as (a) standing committees, (b) reference committees, (c) special committees. These commit-

## ITEMS OF INTEREST

tees shall be nominated by the President and elected by the House of Delegates, unless otherwise provided.

SECTION 2.—*Committees, Appointment and Powers.*—Reference committees shall be nominated from among the House of Delegates, but any member of the Association shall be eligible to serve on standing or special committees. All members of committees who are not members of the House of Delegates shall have the right to present their reports in person to the House of Delegates, and to participate in the debate thereon, but shall not have the right to vote.

SECTION 3.—*Standing Committees.*—Standing committees shall be as follows:

- (a) A Judicial Council.
- (b) A Committee on Dental Education.
- (c) A Committee on Dental Legislation.
- (d) A Committee on Transportation and Place of Session.

SECTION 4.—*Judicial Council.*—The Judicial Council shall be composed of five members to be appointed by the President on the first day of each annual session from the delegates present, and to continue in office until their successors are appointed. It shall organize by electing a chairman and a secretary. The latter shall keep a permanent record of its proceedings, shall conduct all correspondence, etc. The Judicial Council shall hold such meetings during the annual session, and during the year, as it may deem necessary. Three members shall constitute a quorum. It shall make an annual report of its proceedings to the House of Delegates. To this Council shall be referred all questions, complaints, protests, and matters of an ethical nature. When such complaints, protests, etc., concern an individual's relations with his local or State society, they shall be considered by this Council only after the same shall have been referred to the Constituent Society concerned, or on an appeal from such Constituent Society. Its decisions shall be subject to appeal to the House of Delegates.

SECTION 5.—*Committee on Dental Education.*—The Committee on Dental Education shall consist of five members. One member shall be elected to serve one year, one for two years, one for three years, one for four years, and one for five years. Thereafter one member shall be elected each year to serve five years. The committee shall organize, shall elect a Chairman and Secretary, and shall adopt such regulations for the government of its actions as it may deem expedient. It shall expend money or contract financial obligations only as shall be authorized in writing by the Board of Trustees. The functions of the Committee on Dental Education shall be: (1) To make an annual report to the House of Delegates on the existing conditions of Dental Education in the United States. (2) To make suggestions as to the means and methods by which the National



Dental Association may best influence favorably dental education. (3) To act as the agent of the National Dental Association under instructions of the House of Delegates, in its efforts to elevate the standards of dental education.

SECTION 6.—*Committee on Dental Legislation.*—The Committee on Dental Legislation shall consist of five members. One member shall be elected for one year, one for two years, one for three years, one for four years, and one for five years. Thereafter one member shall be elected each year to serve for five years. The committee shall organize, shall elect a Chairman and Secretary, and shall adopt such regulations for the government of its actions as it may deem expedient. It shall expend money or contract financial obligations only as shall be authorized in writing by the Board of Trustees. This committee shall have the authority to appoint a sub-committee, consisting of one member from each Constituent Association, and shall have the power to co-operate with the officers of the State and local societies, and with the chief officers of the United States Army and Navy in regard to legislation affecting the welfare of dentistry. The Committee on Dental Legislation shall report to the House of Delegates at each annual session its proceedings during the previous year, and shall recommend such action in respect to pending legislation as it shall deem proper.

SECTION 7.—*Committee on Transportation and Place of Sessions.*—The Committee on Transportation and Place of Sessions shall consist of five members. The chairman shall be selected to serve for three years; the other four members shall be appointed by the President annually, one of whom shall reside in the place chosen for the next annual session. Invitation for the Association to convene in any city or place shall be presented to this committee, whose duty it shall be to recommend to the House of Delegates the places available for an annual session, with advantages and disadvantages of each. The Committee shall secure railroad rates for the annual session, and shall publish same in the Journal of the National Dental Association, and other journals, at the earliest possible time prior to the date of the annual session.

SECTION 8.—*Reports of Standing Committees.*—The reports of standing committees shall, as far as possible, be transmitted to the General Secretary ten days before the date of the annual session, and he shall have them printed for distribution to members of the House of Delegates at the first meeting of the annual session.

SECTION 9.—*Reference Committees.*—(a) Immediately after the organization of the House of Delegates, at each annual session, the President shall appoint from among its members such committees as may be deemed expedient by the House of Delegates. Each committee shall con-

## ITEMS OF INTEREST

sist of three members unless otherwise provided, the chairman to be specified by the President. The members of these committees shall serve during the session at which they are appointed.

(b) To the appropriate committee shall be referred resolutions, measures, and propositions presented to the House of Delegates before final action shall be taken, unless otherwise unanimously ordered by the House of Delegates.

(c) Each reference committee shall, as soon as possible after the adjournment of each meeting, or during the meeting, if necessary, take up and consider such business as may have been referred to it, and shall report on the same at the next meeting, or when called on to do so.

(d) The following reference committees are hereby provided:

1. A Committee on Sections and Section Work, to which shall be referred all business relating to the Sections.

2. A Committee on Rules and Order of Business, to which shall be referred all matters regarding rules governing the action, methods of procedure and order of business of the House of Delegates.

3. A Committee on Dental Education, to which shall be referred all matters relating to dental colleges and dental education. The members of the standing Committee on Dental Education shall be *ex officio* members of this reference committee.

4. A Committee on Legislation, to which shall be referred all matters relating to State and national legislation. The members of the standing Committee on Dental Legislation shall be *ex officio* members of this reference committee.

5. A Committee on Amendments to the Constitution and By-Laws, to which shall be referred all business relating to this subject.

6. A Committee on Reports of Officers, to which shall be referred the President's address and the Secretaries' and Trustees' reports.

7. A Committee on Credentials, to which shall be referred all questions regarding the registration and the credentials of delegates.

8. A Committee on Miscellaneous Business, to which shall be referred all business not otherwise disposed of.

### Book 10.

#### CHAPTER XI.—*General Meetings.*

SECTION 1.—*Time of General Meetings.*—The general meetings shall be held at 10.30 A. M. and at 8 P. M. of the first day of the annual session, and at 8 P. M. of the subsequent days.

SECTION 2.—*Addresses.*—At the first general meeting shall be delivered the address of the President, whose recommendations shall thereon go to the House of Delegates for action. The balance of the time of



the first meeting shall be devoted to such other addresses as may be provided. The first evening meeting shall be devoted to a paper recommended by Section 1, the second evening meeting to a paper recommended by Section 2, and the third evening meeting to a paper recommended by Section 3.

SECTION 3.—*Order of Business.*—The order of the first general meeting shall be as follows:

1. Calling the meeting to order.
2. Prayer.
3. Address of Welcome and Response.
4. Report of Committee of Arrangements.
5. President's annual address.
6. Discussion of President's address.
7. Literary program.
8. Adjournment.

#### CHAPTER XII.—*Sections.*

SECTION 1.—*Meetings.*—Each Section shall hold its first meeting at 2 P. M. of the first day of the annual session, and on each subsequent day at 9 A. M., until the program is completed or as the Section may decide; provided that a Section shall hold no meeting that will conflict with a general meeting.

SECTION 2.—*Officers of Sections.*—The officers of each Section shall consist of a chairman, vice-chairman and a secretary. These shall serve for one year, or until their successors are elected and qualify; provided that each Section may elect its secretary to serve a longer time at its discretion. Each Section shall also elect annually one representative and an alternate to the House of Delegates of the National Dental Association, to serve for one year.

SECTION 3.—*Election of Officers.*—The election of officers of each Section shall be the first order of business of the morning meeting of the last day of each annual session.

SECTION 4.—*Duties of Section Officers.*—(a) Each chairman shall perform the usual duties of such office, and shall co-operate with the Section Secretary in procuring papers and in the arrangement of the program for his Section. (b) Each vice-chairman shall assist his chairman, and take his place when necessary. (c) Each secretary shall keep the records of the Section in a book provided for such purpose; shall, with the co-operation of the Chairman, conduct all correspondence necessary to secure papers and perfect the program for his Section; and he shall forward to the General Secretary, at least forty days prior to the date of the annual session, a copy of his Section program for insertion in the of-

## ITEMS OF INTEREST

ficial program, and shall perform all other duties pertaining to the office of Secretary.

SECTION 5.—*Executive Committee.*—Each Section shall have an Executive Committee, which shall consist of the last three retired chairmen. In the absence of a member of this committee the acting chairman shall sit in his stead. At the first organization of each Section, in 1913, an Executive Committee of three shall be elected, one to serve for one year, one for two years, and one for three years, by which time the Executive Committee will be constituted as above provided. The Executive Committee shall examine and pass on all papers read before the Section, and shall indorse for publication only those that are of scientific or of practical value; it shall also examine all papers offered to the Section prior to the reading thereof, and shall choose the one to be read before the general meeting devoted to the work of its particular Section, and such paper shall not be read before the Section meeting.

SECTION 6.—*Honorary and Associate Members.*—Each Section, at its opening meeting, may make nominations for honorary and for associate members, in accordance with Sections 2 and 3 of Chapter III. The Secretary shall immediately notify the General Secretary of such nominations.

### CHAPTER XIII.—*Papers and Discussions.*

SECTION 1.—Titles and abstracts of papers offered to Sections must be in the hands of the Section Secretary at least thirty-five days prior to the annual session.

SECTION 2.—The time allowed for the presentation of a paper before a Section shall be limited to thirty minutes, except by unanimous consent. No one shall address a Section more than once on the same subject, nor for longer than five minutes, except with the consent of the majority of those present.

SECTION 3.—Each Section may provide by-laws for its own government, provided these by-laws do not conflict with the Constitution and By-Laws of the Association.

### CHAPTER XIV.—*Publication.*

SECTION 1.—No paper shall be published as having been read before a Section unless it has received the approval of the Executive Committee of said Section.

SECTION 2.—Each author shall hand his manuscript to the Section Secretary immediately after the reading thereof, and such manuscript must be ready for publication at that time, and must be accompanied by copy for all illustrations needed. The Secretary shall indorse thereon that it has been read, and shall hand it to the Executive Committee for



its action. All papers approved by the Executive Committee shall be returned to the Section Secretary, who shall at once forward them for publication to the editor of the Journal.

SECTION 3.—No paper shall be published as having been read before a Section unless it has actually been read, or unless, for special reasons, when the author has been present and prepared to read the paper, the Section shall vote to have it read by title.

SECTION 4.—All papers and reports presented to a Section, and approved by the Executive Committee, shall become the exclusive property of the Association, provided that the Board of Trustees may permit an author to publish his paper elsewhere than in the Journal of the National Dental Association.

SECTION 5.—*Official Resolutions Approved by the House of Delegates.*—No memorial, resolution, or opinion of any character whatever shall be issued in the name of the National Dental Association, unless it shall have been approved by the House of Delegates.

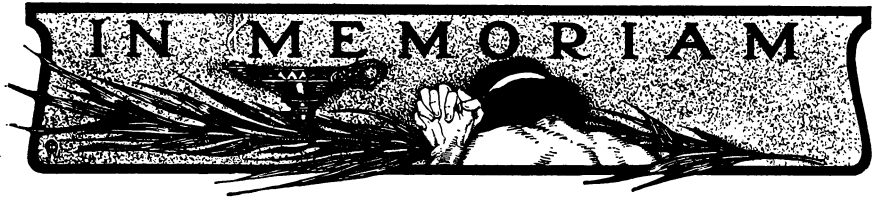
#### **Book U. Amendments**

##### **CHAPTER XV.—*Articles of Incorporation.***

SECTION 1.—The House of Delegates at any annual session, wherever the same may be held, may instruct the Board of Trustees to make any changes in the articles of incorporation in accordance with the law, which may appear desirable or which may be made necessary, by any change or amendment to the Constitution and By-Laws of this Association.

SECTION 2.—These By-Laws may be amended on a two-thirds vote of the House of Delegates, provided that no amendment shall be acted on till the day following that on which it is introduced; except that the Board of Trustees may by unanimous vote make such changes, and such changes only as may be required to adapt them to the rules and regulations of the United States postal authorities.





### **Dr. Charles S. Stockton.**

Our readers will be grieved to learn of the death of Dr. Charles S. Stockton, generally known as the Dean of the Dental Profession of the State of New Jersey. Dr. Stockton was born December, 1836, at Springfield, Burlington County, New Jersey, and was therefore seventy-six years of age.

Dr. Stockton was a student in the office of the late Dr. George C. Brown, and began the practice of dentistry at Mount Holly, N. J., in 1857. Desiring to be better educated in the science of dentistry, he attended the Pennsylvania College of Dental Surgery and received the degree of D. D. S. in that institution in 1868.

The New Jersey State Dental Society was founded in response to a circular sent out to twenty-seven dentists in October, 1870, Dr. Stockton being one of those prominent in the initiation of this movement. With the death of Dr. Stockton there survive only three of the men who signed the call for that meeting. Dr. Stockton has occupied many offices in the Society and served as President in 1878. After the passage of the dental statute he was made a member of the State Board of Registration and Examination in Dentistry, serving from 1873 until 1874. In 1903 he was again appointed to the Board to fill the unexpired term of Dr. J. Allen Osmun, which position he held for two years, resigning on account of ill health.

He was one of the charter members of the Central Dental Association of Northern New Jersey, founded in 1880. He was its President, and a member of the Entertainment Committee for seven years. In 1903 he was made a member of the Executive Committee of the World's Columbia Dental Congress. He was also a member of the National Dental Association, National Association of Dental Examiners, and an associate member of the Odontological Society of New York, First District Dental Society of New York, and the Stomatological Society of New York.

His friends in the profession tendered him a banquet at the New York Athletic Club on the occasion of celebrating his fiftieth year in





practice, over two hundred guests being present. He has been a frequent contributor to periodical literature, and was constantly conspicuous in the discussions of scientific papers. He was gifted with a commanding flow of language and considerable eloquence which made him in demand as an after-dinner speaker, his name rarely being absent from the more important banquets in the metropolitan district.

Dr. Stockton also was much interested in civic affairs. He was one of the prime movers for a free public library and helped to establish a Technical School. He also served as director and vice-president of the Board of Trade of Newark, and was a member of the Washington Headquarters Association and a director for six months. He was also a member of the Essex Country Club. He was deeply interested in the formation of the Newark Free Dental Clinic, and through his own personal efforts collected \$1,300 from his friends and patients.

Dr. Stockton was married in 1858 to Miss Margaret Smith. His widow survives him and also a son, Frank O. Stockton, M. D., and a daughter, Mrs. Elliott.

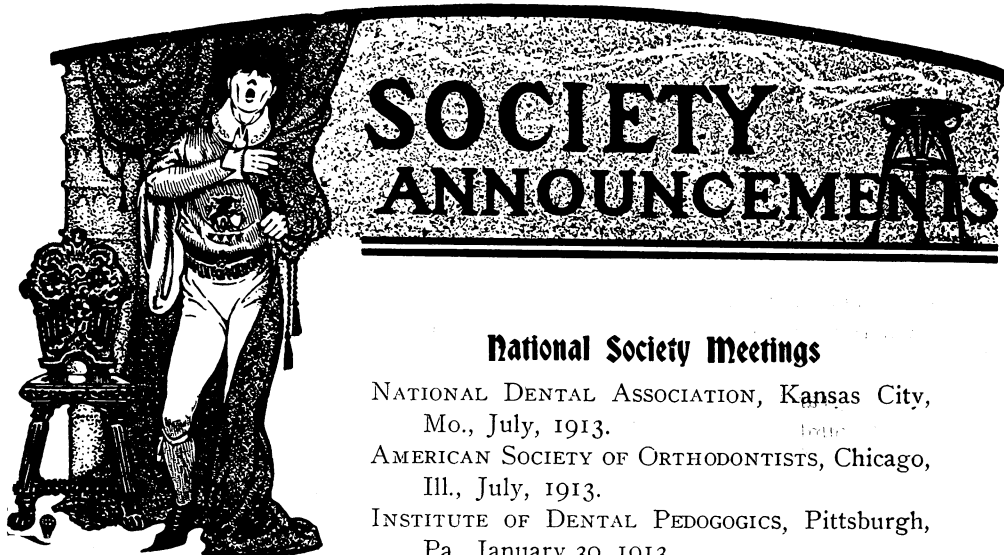
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### **Dr. Joseph P. Root.**

As we go to press we learn with sadness of the sudden death of Dr. Joseph P. Root, the cultured editor of the Western Dental Journal, who died after an unsuccessful operation made necessary by an accident while playing golf.

An appropriate obituary will appear in our next issue.





### **National Society Meetings**

NATIONAL DENTAL ASSOCIATION, Kansas City,  
Mo., July, 1913.

AMERICAN SOCIETY OF ORTHODONTISTS, Chicago,  
Ill., July, 1913.

INSTITUTE OF DENTAL PEDOGOGICS, Pittsburgh,  
Pa., January 30, 1913.

### **Institute of Dental Pedogogics.**

The next annual meeting of the Institute of Dental Pedagogics will be held in Pittsburgh, Pa., January 28, 29 and 30, 1913. An unusually interesting program has been arranged and no progressive dental teacher can afford to miss this meeting.

FRED W. GETHRO, Secretary.

Marshall Field Bldg., Chicago, Ill.

### **Illinois State Board of Dental Examiners.**

The semi-annual meeting of the Illinois State Board of Dental Examiners, for the examination of applicants for a license to practice dentistry in the State of Illinois, will be held at the Northwestern University Dental School, corner Lake and Dearborn Streets, Chicago, beginning Monday, November 11, 1912, at 9 A. M.

All applications, together with the fees, twenty-six dollars (\$26.00), must be filed with the secretary at least five (5) days prior to date of examination.

Address all communications to

T. A. BROADBENT, Secretary.

705 Venetian Building, Chicago, Ill.



### **The Northern Illinois Dental Society.**

The silver jubilee of the Northern Illinois Dental Society will be held the third Wednesday and Thursday (23rd and 24th), October, 1912, in Rockford. A program of unusual interest has been prepared, and a good attendance desired. A banquet will be served at the expense of the members.

M. R. HARNED, President.

F. H. BOWERS, Secretary.

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### **Chicago Dental Society**

The officers of the Chicago Dental Society are planning a large celebration for Friday and Saturday, January 31st, and February 1, 1913. The program includes two days of clinics by selected men from all parts of the country, one evening of papers by men of international reputation, concluding the two days meeting, with a testimonial banquet to our esteemed confrère, Dr. Truman W. Brophy, of Chicago.

The dentists of Chicago will make every effort to see that the entire program will eclipse all former meetings. Any dentist who has a new or interesting clinic to give at this meeting is cordially invited to correspond with the Chairman of the Clinic Committee.

DR. FRED W. GETHRO.

917 Marshall Field Bldg., Chicago, Ill.

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### **Union Meeting of the 7th and 8th District Dental Societies of New York State.**

On November 14th, 15th and 16th, 1912, there will be held what is confidently expected will be the largest meeting of the dentists of Eastern, Central and Western New York, as well as a number from Western Pennsylvania and adjacent points in Canada. As it is two years since the Seventh and Eighth District Dental Societies have held a union meeting every member of these two societies and a great number from the Fifth District Dental Society of the same State are expected to attend and help promote the interests of this meeting.

Prominent essayists and able clinicians have been secured to provide those who attend with plenty to think about on very interesting subjects and helpful assistance they can use in their everyday practice.

There will also be an extraordinarily large exhibit of the different manufacturers from all over the country, who will bring the latest scientific methods and appliances for demonstration by men who are thorough-

## ITEMS OF INTEREST

ly conversant with the needs and requirements of dentists, and every dentist within convenient distance should make it a point to be at this important meeting where there will be so much to learn and see which will be useful in helping him to become a better practitioner.

Business Committee,

E. G. LINK (Chairman),

E. L. SCHLOTTMANN,

G. C. LOWE,

M. B. ESCHELMAN,

G. M. HUGHEY,

G. M. FIERRO.

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### **Maryland State Board of Dental Examiners.**

The Maryland State Board of Dental Examiners will meet for examination of candidates for certificates November 6th and 7th, 1912, at the Baltimore College of Dental Surgery, Baltimore, at 9 A. M.

For application blanks or further information address

F. F. DREW, D. D. S., Secretary.

701 North Howard Street, Baltimore, Md.

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### **Montana State Board of Dental Examiners.**

The Montana State Board of Dental Examiners, at its annual July meeting, cancelled all its reciprocity contracts with all the States with which Montana had exchange agreements, it being the unanimous opinion of the Board that such an exchange was not of any benefit either to Montana or any of the States concerned.

DR. R. R. RATHBONE,

Judiciary Com.

Dillon, Montana.

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### **Massachusetts Board of Registration in Dentistry.**

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston October 23-24-25, 1912.

For application blanks and further information apply to

DR. G. E. MITCHELL, Secretary.

14 Water Street, Haverhill, Mass.